THE AMERICAN
School Board Journal

A PERIODICAL OF SCHOOL ADMINISTRATION

Devoted to the Interests of School Boards, Superintendents,
School-Business Officials, and School Architects

VOLUME 102
JANUARY-JUNE, 1941

THE BRUCE PUBLISHING COMPANY
MILWAUKEE
NEW YORK SAN FRANCISCO CHICAGO

INDEX TO TITLES AND AUTHORS

Volume 102 — January to June, 1941
Abbreviations: (Ed.) Editorials; (N) News

	Month	Page
Accounting for School Property Depreciation, W. E. Rosenstengel	February	48
Administering the Public Use of School Buildings, E. E. Allen	April	27
Administering Supplies in a Small School, R. S. Strolle	June	45
Adopt Rules for Use of School Halls, (N)	January	87
Agreement for a One-Client Association of Insurance Agents, An, C. L. Suffield	June	50
ALLEN, E. E. — Administering the Public Use of School Buildings	April	27
Alliance Insurance Program, (N)	February	78
American Association of School Administrators Will Meet in Atlantic City	February	60
American Community Organizes Its Citizens for National Defense, J. A. Sexson	May	21
American Ideals Through Religious Life, H. L. Smith	March	52
Americanism at the Tip-Off, Margaret Norheim	April	21
Americans, Awake to Language Needs, H. G. Doyle	March	19
Ann Arbor Adopts Policies Governing Teachers' Salaries, (N)	May	78
Annual Financial Audit, W. E. Rosenstengel	May	42
Appleton Salary Schedule, (N)	January	83
Appreciation and Loyalty for American Ideals, Angelo Patri	March	53
ASFAHL, W. D. — The Board of Education Considers Retardation and Promotion	May	30
Aurora Salary Schedule, (N)	June	76
Avenal Breaks With Tradition, W. F. Kimes	January	23
Baker School, Richmond, Va.	January	59
Balanced Board of Education, (Ed.)	May	54
BARNHILL, O. H. — Burbank Schools Training 6000 Aircraft Workers	June	43
Barrie School, Fort Atkinson, Wis.	February	33
Basic Policies of School Administration, (N)	February	62
BELL, JOHN W. — The Continuous Building Survey Experience of Chicago High Schools	January	66
BENESCH, A. A. — The Waste of Military Training in High Schools	March	43
BERGH, W. A. — Bombers and Battleships Vie With Three R's For Attention of Seattle School Board	February	21
BERTRAM, J. F. — General Skills and Vocational Guidance	April	24
Better Safety in School Law, (Ed.)	April	55
Better School Buildings in 1941, (Ed.)	January	64
Better Vocational Education Needed, (Ed.)	March	55
Billings Senior High School	January	47
Board of Education Considers Retardation and Promotion, W. D. Asfahl	May	30
Boettcher School for Crippled Children, Denver, Colo.	April	36
Bombers and Battleships Vie With Three R's for Attention of Seattle School Board, W. A. Bergh	February	21
Bombs and Books, J. H. Moehle	March	30
Boulder Community Co-ordinating Council, (N)	June	62
BOWERS, E. A. — Supervision of the Noon Hour	April	63
BROWN, EDWIN J. — Please Copy from the Board	May	51
BROWNE, W. L. — Defense Activities Make Problem for Battle Creek Schools	February	50
Bryant School, Boone, Iowa	April	33
Burbank Schools Training 6000 Aircraft Workers, O. H. Barnhill	June	43
Business Reorganization of Gary Schools, (N)	February	78
BUTSCH, R. L. C. — The School-Board Member Looks at Statistics	June	24
BUTTERWORTH, J. E. — Sound Policy in the Administration of Pupil Transportation	June	27
Cadet Teaching — A Cooperative Venture in Teacher Education, Ruth M. Northway	April	50
CAPPS, A. G. — Democratic Procedures in Developing a Code of Rules and Regulations	April	25
CARPENTER, W. W. — Democratic Procedures in Developing a Code of Rules and Regulations	April	25
Central Concepts of a Philosophy of Education in Relation to Public Education, E. A. Fitzpatrick	June	29
Central School, Naples, N. Y.	June	33
Changing Concept of Board of Education, J. L. Thompson	February	19
Child Migration in a City, N. L. Engelhardt, Jr.	February	51
Citizens of Tomorrow, R. W. Sockman	March	51
Civic Values in School-Board Service, (Ed.)	April	55
Classroom Teachers' "Pet Peeves" About School Buildings, Heber Hinds Ryan	January	76
CLETTENBERG, J. E. — Make the Teachers' Visiting Day More Effective	April	48
COLEMAN, BARBARA — The Position of Principal's Secretary in the Management of the School	May	56
COLEMAN, JOHN B. — La Crosse Builds an Adult School	January	54
Color in the Schoolhouse, C. T. Masterson and W. G. Darley	January	50
Colorado Springs Salary Schedule, (N)	March	68
Community Patriotic Pageant, (N)	June	80
Consumer Mathematics and Its Teaching in the High School, H. B. Risinger	May	29
Continuous Building Repairs, J. C. Davies	May	43
Continuous Building Survey Experience of Chicago High Schools, John W. Bell	January	66
COOPER, GREGORY — Let School Boards Beware the Architectural Hypocrite	January	19
Cooperation of Functioning Factors of a School System, (Ed.)	February	55
Corpus Christi Copes with Defense Boom, R. B. Fisher	March	33
Darien Salary Schedule, (N)	June	76
DARLEY, W. G. — Color in the Schoolhouse	January	50
DAVIES, J. C. — Continuous Building Repairs	May	43
DAVIS, B. L. — The Hot-Lunch Program at Hillsdale, Mich.	February	44
DAVIS, HAZEL — The Merit Plan in School-Personnel Administration	May	23
DAVIS, W. M. — Pioneer School Board Practices Disclosed by Old Record	June	25
Death of Dr. Henry E. Bennett, (N)	June	80
Defense Activities Make Problem for Battle Creek Schools, W. L. Browne	February	50
Democratic Procedures in Developing a Code of Rules and Regulations, W. W. Carpenter, A. G. Capps, and L. G. Townsend	April	25
Democratic Superintendency, The, (Ed.)	April	54
Deserving Citizen, A, (N)	March	65
Devices for Diagnostic Classroom Observation, J. R. Shannon	April	31
District of Columbia Offers Defense Courses, (N)	May	78
Double or Single Standard Scholastic Requirements?, W. A. Rex, Jr.	June	32
DOYLE, H. G. — Americans, Awake to Language Needs	March	19
DUNNAN, D. W. — The Extracurricular Activities Program at Work	February	44
East Elementary School, Galion, Ohio	January	37
Eau Claire Salary Schedule, (N)	March	68
Economy in Operation and Maintenance of School Plant, James R. Newman	January	79
Economy, True and False, in School Buildings, Warren S. Holmes	January	21
Economy, True and False, in School Buildings, Warren S. Holmes	February	45
Education and Economic Well-Being, J. K. Norton	March	50
Education for the Common Defense, H. C. Bauer	February	64
Elementary School Painted for Children, A. E. Erickson	May	49
ENGELHARDT, N. L., JR. — Child Migration in a City	February	51
ENGLE, A. W. — The Science Department Approaches a Problem	June	58
Enlisting School Officers in Solution of Education Problems, G. K. Kelly	March	58
ENLOW, E. R. — How Shall We Reduce Pupil Failures?	February	43
ERICKSON, A. E. — An Elementary School Painted for Children	May	49
ESSIG, J. FRED — Problems Confronting Boards of Education in Colorado	February	41
EVANS, W. A. — Indianapolis Surveys Its High School Graduates	March	56
Evansville Builds a School Shop	April	30
Executive Sessions and the Public Press, (Ed.)	April	54
Extracurricular Activities Program at Work, The, D. W. Dunnan	February	44
Fairfield Industrial-Arts High School	June	36
FAIRING, ROBERT L. — Rewards That Defeat Themselves	April	53
Federal Control of Local Defense Production, (N)	May	66
Federal Government Asked to Help Schools Meet Expense of Defense Program, (N)	April	60
Federal Teachers' Pensions?, (Ed.)	January	64
Fence Finds New Functions, Solves Several School Problems, F. A. Lewis	May	48
FIELDS, MYRON A. — Please Copy from the Board	May	51
FISHER, R. B. — Corpus Christi Copes with Defense Boom	March	33
FITZPATRICK, E. A. — Central Concepts of a Philosophy of Education in Relation to Public Education	June	29
Five Senses of a Superintendent	February	18
FIXLEY, E. H. — Unit Costs: The Educational Chameleon	March	18
FLIKEID, JENS — Janitorial Tools, Materials, and Supplies for Use in School Building Maintenance	June	48
For Betterment of St. Louis Schools, (N)	February	80
FROST, NORMAN — What Teaching Load?	March	43
Fuel Economies Effected Through Use of Automatic Coal Stokers, V. P. Morey	June	40
Functions of State School-Board Associations, Tom O'Brien	May	32
Garden Oaks School, Houston, Tex.	March	35
Garfield Elementary Schools, Toppenish, Wash.	February	35
General Skills and Vocational Guidance, J. F. Bertram	April	24
Getting in the Last Word	June	60
GODWIN, W. R. — La Porte Schools Face Controversial Subjects	April	29
Good School Custodian, The, R. T. McGrath	June	49
Good Will at Graduation	April	49

	Month	Page
Guide for Textbook Analysis, A, W. O. Underwood	March	23
GUILES, R. E. — Keeping the School Census Up to Date	February	47
GUNN, CATHERINE — Telling the Public	May	18
HAEFNER, RALPH — Lest We Forget the Individual	March	22
Harrison Senior High School	January	44
HAUSER, L. J. — Meeting the School-Building Needs of the Socially Underprivileged Areas of a City	January	29
HAWK, H. C. — The Principal as a "Trouble Shooter"	February	25
HOLMES, WARREN S. — Economy, True and False, in School Buildings	January	21
HOLMES, WARREN S. — Economy, True and False, in School Buildings	February	45
Hot-Lunch Program at Hillsdale, Mich., B. L. Davis	February	44
Hot-Lunch Project in Nashwauk, Minn., (N)	May	66
How California School Administrators Are Selecting Non-certificated Employees, H. K. Young	June	45
How Shall We Reduce Pupil Failures?, H. R. Hunter and E. R. Enlow	February	43
How a Superintendent Begins His Job, (Ed.)	March	54
HUMMEL, E. J. — What School Systems Want in the Teachers They Employ	March	25
HUNTER, H. R. — How Shall We Reduce Pupil Failures?	February	43
Huron Teachers' Salary Schedule, (N)	April	68
Implications of a Declining School Population for Superintendents and Trustees, (N)	March	52
Improvements in the High School Curriculum, H. C. Hunt	February	64
Improving the Nonteaching Staff, (Ed.)	June	54
Indianapolis Surveys Its High School Graduates, W. A. Evans	March	56
Indoctrination and Propaganda in American Schools, T. H. Schutte	April	18
In-Service Training for School Janitors, (N)	January	74
Inspecting and Scheduling Repairs to Heating Plants, Don E. McGrath	May	50
Inspection Blank for School Buildings	January	73
ITTNER, MARIE ANDERSON — William B. Ittner: His Service to American School Architecture	January	30
Jamesburg High School Clubs	March	48
Janitor-Engineer Short Courses, (N)	May	90
Janitorial Tools, Materials, and Supplies for Use in School Building Maintenance, Jens Flikeid	June	48
JOHNSON, H. B. — Purchasing School Furniture	May	41
Keeping the School Census Up to Date, R. E. Guiles	February	47
KELLY, G. K. — Enlisting School Officers in Solution of Education Problems	March	58
Kenosha Salary Schedule, (N)	June	75
Kenosha Single-Salary Schedule, (N)	February	67
KENYON, HAZEL — Portland Schools Are on the Air	June	21
KILHAM, WALTER H. — Should the Old Schoolhouse Be Remodeled?	January	25
KIMES, W. F. — Avenal Breaks With Tradition	January	23
La Crosse Builds an Adult School, John B. Coleman and W. F. Oppermann	January	54
La Porte Schools Face Controversial Subjects, W. R. Godwin	April	29
La Salle Salary Schedule, (N)	March	68
Leaders and Leadership in a Democracy, A. F. Saunders	May	19
Leadership in School Administration, (Ed.)	June	54
Lest We Forget the Individual, Ralph Haefner	March	22
Let School Boards Beware of the Architectural Hypocrite, Gregory Cooper	January	19
LEWIS, F. A. — Fence Finds New Functions, Solves Several School Problems	May	48
LONG, RAYMOND V. — Standards of School-Building Construction as Affecting Maintenance	January	61
MAHONEY, J. O. — School With a Lantern in Its Hand	April	22
Make the Teachers' Visiting Day More Effective, J. E. Clettenberg	April	48
MARSH, HARRY B. — A Method of Change to the Annual Promotion Plan	February	26
MASTERSON, C. T. — Color in the Schoolhouse	January	50
MATTIER, A. P. — Safety Committees Pay Dividends	February	49
McGRATH, DON E. — Inspecting and Scheduling Repairs to Heating Plants	May	50
McGRATH, R. T. — The Good School Custodian	June	49
Meddler in School Affairs, (Ed.)	February	54
Meeting School-Building Needs of the Socially Underprivileged Areas of a City, L. J. Hauser	January	29
Merit Plan for Nonteaching Employees, (Ed.)	March	55
Merit Plan in School-Personnel Administration, Hazel Davis	May	23
Method of Change to the Annual Promotion Plan, A, Harry B. Marsh	February	26
Military Training in Secondary Schools, W. P. Uhler, Jr.	February	28
MILLER, L. J. — Should Schools Produce Nonreaders?	March	47
MILLER, W. T. — Speakers at the School	April	56
Minimum Requirements for a Health Room in a Small School, Carl A. Roos	January	32
MOEHLE, J. H. — Bombs and Books	March	30
MOFFITT, J. C. — We Cooperate for Better Health	June	56
Montana School Boards Meet, (N)	June	82
Montebello School Business Procedures, G. M. Schurr	February	23
MOREY, V. P. — Fuel Economies Effected Through Use of Automatic Coal Stokers	June	46
MOREY, V. P. — Termite Control in Schoolhouses	May	47
MUELLER, GEORGE — This business of School Feeding	June	47
MULFORD, H. B. — The Teacher and the School Board Cooperate	June	18
MULFORD, H. B. — What Do You Mean, Professor?	February	30
Muscatine Senior High School, A. A. Johnson	May	33
Nashwauk Fieldhouse and Stadium	January	53
National Council of School Boards' Associations Meets, (N)	March	53
National Defense Raises Teacher Placement Problems, H. F. Vallance	June	52
Newark Senior High School	January	40
New Boom Towns, (Ed.)	February	54
New Health Projects of the NYA, (N)	January	43
New Jersey's Step Toward Healthier School Personnel, C. L. Worth	February	58
NEWMAN, JAMES R. — Economy in the Operation and Maintenance of School Plant	January	79
New St. Louis School Board, (N)	May	60
Newspaper on Records for Newark Teachers, A	April	58
NICHOLS, JOHN E. — Plan Integration in High School Buildings	January	26
NORHEIM, MARGARET — Americanism at the Tip-Off	April	21
Northampton Senior High School	January	33
NORTHWAY, RUTH M. — Cadet Teaching — A Cooperative Venture in Teacher Education	April	50
O'BRIEN, TOM — The Functions of State School-Board Associations	May	32
Oil City, Pa., Senior High School	February	37
Open Prekindergartens, (N)	June	80
OPPERMANN, W. F. — La Crosse Builds an Adult School	January	54
Organization and Administration of Major Supervisory Services, Emery Stoops	June	19
Organization and Administration of NYA Student Work Project	March	62
Ottumwa Improves School Plant, (N)	June	64
Our School Board Is Going to Meet Tonight, Frank Slobetz	April	45
Outdoor Advertising of School Activities, E. E. Oertel	March	46
Parents and Teachers Look at Education	March	64
PARKS, W. B. — The Relationship That Should Exist Between Board of Education and Superintendent	June	41
PATTERSON, N. S. — The Practical and Modern Mark University of Houston Building Program	June	38
Picking an Elementary Principal	February	53
Pioneer School Board Practices Disclosed by Old Record, W. M. Davis	June	25
Place of the High School in Vocational Education, P. H. Powers	March	51
Plan Integration in High School Buildings, John E. Nichols	January	26
Please Copy from the Board, Edwin J. Brown and Myron A. Fields	May	51
Portland Schools Are on the Air, Hazel Kenyon	June	21
Position of Principal's Secretary in the Management of the School, Barbara F. Coleman	May	56
POWERS, F. R. — The Science Department Approaches a Problem	June	58
Practical and Modern Mark University of Houston Building Program, N. S. Patterson	June	38
Preservation of School Records, The, (Ed.)	April	55
Principal as a "Trouble Shooter," H. C. Hawk	February	25
Problems Confronting Boards of Education in Colorado, J. F. Essig	February	41
Problem of School-Board Standing Committees, (Ed.)	June	55
Purchase and Distribution of Textbooks and Supplies, C. H. Pygman	May	45
Purchasing Futures for School Cafeterias, (N)	April	66
Purchasing School Furniture, H. B. Johnson	May	41
PYGMAN, C. H. — The Purchase and Distribution of Textbooks and Supplies	May	45
Recommended Practice in School-Board Procedures, (N)	March	103
Relationship That Should Exist Between Board of Education and Superintendent, The, W. B. Parks	June	41
Religion in the Schools, (N)	March	74
RELLER, T. L. — The Superintendent of Schools and the National Crisis	February	31
RELLER, T. L. — Wanted: School Directors Who Direct	April	19
Reorganization in School Administration, (Ed.)	March	54
Rewards That Defeat Themselves, Robert L. Fairing	April	53
REX, W. A., Jr. — Double or Single Standard Scholastic Requirements?	June	32
RISINGER, H. B. — Consumer Mathematics and Its Teaching in the High School	May	29

	Month	Page
ROBERTS, H. C. — Stretching the School Board's Fire-Insurance Dollar	March	27
ROEHL, LOUIS M. — A Rural High School Shop and Classroom	January	52
ROEHL, LOUIS M. — Workshop in a Rural High School Building	April	40
ROGERS, V. Z. — School-Building Fire Insurance	February	56
ROOS, CARL A. — Minimum Requirements for a Health Room in a Small School	January	32
ROSENSTENGEL, W. E. — Accounting for School Property Depreciation	February	48
ROSENSTENGEL, W. E. — The Annual Financial Audit	May	42
Royal Centre Regional High School	May	36
Rural High School Shop and Classroom, Louis M. Roehl	January	52
RYAN, HEBER HINDS — Classroom Teachers' "Pet Peeves" About School Buildings	January	76
Safety Committees Pay Dividends, A. P. Mattier	February	49
Safety Factors in Gas Heating, R. H. White	May	53
Salinas, California, Has Mile-Long Caravan in Operation, (N)	April	58
SAUNDERS, A. F. — Leaders and Leadership in a Democracy	May	19
SCHMIDT, H. W. — School-Plant Surveys	January	17
School-Board Member Looks at Statistics, R. L. C. Butsch	June	24
School-Board Problems in 1941, (Ed.)	February	54
School Boards and Other Public Offices, (Ed.)	January	65
School-Building Fire Insurance, V. Z. Rogers	February	56
School-Building Insurance Programs, (Ed.)	January	65
School-Business Problems of 1941, (Ed.)	May	54
School Director's Relation to the Community, The	June	53
School Physician in the Public Health Program, The, G. M. Wheatley	April	51
School-Plant Surveys, H. W. Schmidt	January	17
School Property and Vandalism, (Ed.)	May	55
School Staff Vacations, (Ed.)	February	55
School Superintendent and School Finances, (Ed.)	June	55
School Transportation in Grants Pass, Oregon, M. B. Winslow	March	60
School With a Lantern in Its Hand, J. O. Mahoney	April	22
Schools Meet Armament Problem, Harry Spurrier	February	83
SCHURR, G. M. — Montebello School Business Procedures	February	23
SCHUTTE, T. H. — Indoctrination and Propaganda in American Schools	April	18
SCHUTTE, T. H. — The Textbook in School Procedure	February	48
Science Department Approaches a Problem, A. W. Engle and F. R. Powers	June	58
Selling the Budget in Ottumwa, (N)	March	73
Service and the School Cafeteria, (N)	January	88
SEXSON, J. A. — American Community Organizes Its Citizens for National Defense	May	21
SHANNON, J. R. — Devices for Diagnostic Classroom Observation	April	31
Should Schools Produce Nonreaders?, L. J. Miller	March	47
Should the Old Schoolhouse Be Remodeled?, Walter H. Kilham	January	25
SLOBETZ, FRANK — Our School Board is Going to Meet Tonight	April	45
Social Position of the School Janitor, (N)	January	82
Solves Insurance Problems, (N)	January	74
Some Trends in School Litigation, (Ed.)	May	55
Sound Policy in the Administration of Pupil Transportation, J. E. Butterworth	June	27
SOWERS, LUELLA D. — Successful Speech Correction	May	25
Speakers at the School, W. T. Miller	April	56
Springfield Single-Salary Schedule, (N)	February	67
Standards for Food Service Equipment, (N)	April	72
Standards of School-Building Construction as Affecting Maintenance, Raymond V. Long	January	61
STOOPS, EMERY — The Organization and Administration of Major Supervisory Services	June	19
Strange Schoolrooms in Early Day Nebraska, J. C. Baker	March	74
Stretching the School Board's Fire-Insurance Dollar, H. C. Roberts	March	27
STROLLE, R. S. — Administering Supplies in a Small School	June	45
Study of Withdrawals in Richmond, Indiana	February	66
Subversive Textbooks, (N)	January	82
Successful Speech Correction, Luella D. Sowers	May	25
SUFFIELD, C. L. — An Agreement for a One-Client Association of Insurance Agents	June	50
Superintendent of Schools and the National Crisis, The, T. L. Reller	February	31
Superintendent's Creed of Relationships, Ralph E. Whipple	May	40
Superintendents Recommend "All-out" Program of Defense, (N)	June	62
Superior Teachers' Salary Schedule, (N)	January	83
Supervision of the Noon Hour, E. A. Bowers	April	63
Supervision of Visual Education in East Aurora, Ill, (N)	February	62
Taking Care of the 80 Per Cent in High Schools, (N)	January	87
Teacher and the School Board Cooperate, H. B. Mulford	June	18
Teacher's Success, (N)	January	83
Telling the Public, Catharine Gunn	May	18
Termite Control in Schoolhouses, V. P. Morey	May	47
Textbook in School Procedure, T. H. Schutte	February	48
This Business of School Feeding, George Mueller	June	47
THOMPSON, J. L. — The Changing Concept of the Board of Education	February	19
Tifton Teachers' Code of Ethics, (N)	January	83
Today As Yesterday, J. C. Baker	March	34
TOWNSEND, L. G. — Democratic Procedures in Developing a Code of Rules and Regulations	April	25
Training in Traffic Safety, (N)	March	103
Trends in Teachers' Salaries, Hazel Davis	March	53
Two Rivers Sick-leave Regulations, (N)	February	68
UHLER, W. P., JR. — Military Training in Secondary Schools	February	28
UNDERWOOD, W. O. — A Guide for Textbook Analysis	March	23
Union Street School, Middleboro, Mass.	May	39
Unit Costs: The Educational Chameleon, E. H. Fixley	March	18
Unpublished Manuscript, An,	April	66
UPHAM, JOHN W. — Without Regrets	May	28
VALLANCE, H. F. — National Defense Raises Teacher Placement Problems	June	52
Vestal Central School, Vestal, N. Y.	March	37
Wanted: School-Board Members, F. J. Moffitt	March	29
Wanted: School Directors Who Direct, T. L. Reller	April	19
Washington State Superintendent Takes Office	February	70
Waste of Military Training in High Schools, A. A. Benesch	March	43
We Cooperate for Better Health, J. C. Moffitt	June	56
What Do You Mean, Professor?, H. B. Mulford	February	30
What School Systems Want in the Teachers They Employ, E. J. Hummel	March	25
What Teaching Load?, Norman Frost	March	43
WHEATLEY, G. M. — The School Physician in the Public Health Program	April	51
When the Faculty Goes on Strike	March	45
WHIPPLE, RALPH E. — Superintendent's Creed of Relationships	May	50
WHITE, R. H. — Safety Factors in Gas Heating	May	53
William B. Ittner: His Service to American School Architecture, Marie Anderson Ittner	January	30
WINSLOW, M. B. — School Transportation in Grants Pass, Oregon	March	60
Without Regrets, John W. Upham	May	28
Working Plan of Music Education in Anacortes, Wash., (N)	June	63
Workshop in a Rural High School Building, L. M. Roehl	April	40
WORTH, C. L. — New Jersey's Step Toward Healthier School Personnel	February	58
YOUNG, H. K. — How California School Administrators are Selecting Noncertificated Employees	June	45

NEWS DEPARTMENTS

Volume 102 — January to June, 1941

After the Meeting (School Humor): January, 110; February, 96; March, 102; April, 84; May, 100; June, 86.

Finance and Taxation: January, 109; March, 73; May, 68.

New Books: January, 89; February, 76; March, 85; April, 74; May, 71; June, 71.

News of School Officials: January, 96; February, 84; March, 93; April, 80; May, 94; June, 66.

Personal News of Superintendents: January, 99, 103; February, 86; March, 94; April, 64; May, 80; June, 68, 70.

Publications: January, 93; February, 74; March, 89; April, 75; May, 74; June, 74.

School Administration News: January, 87; February, 62; March, 78; April, 67; June, 62.

School-Board Convention News: January, 94; February, 78; March, 90; April, 72; May, 65.

School Board News: January, 72; March, 65; April, 70; May, 60; June, 78.

School Building News: January, 104; February, 77; March, 76; June, 64.

School Buyers' News: January, 110; February, 96; March, 102; April, 84; May, 100; June, 86.

School Law: January, 70; February, 72; March, 72; April, 62; May, 64.

Teachers and Administration: January, 83; February, 67; March, 68; April, 66.

Teachers' Salaries: January, 83; March, 68; April, 68; May, 78; June, 75.

PERIODICAL ROOM
GENERAL LIBRARY
UNIV. OF MICH.

VOLUME 102 NUMBER 1

JAN 6 1941

THE AMERICAN School Board Journal

A Periodical of School Administration

JANUARY, 1941

ANNUAL SCHOOL BUILDING NUMBER

THE BRUCE PUBLISHING COMPANY, MILWAUKEE, WISCONSIN

In New Trier's $3,000,000 School Plant—

"*Hard Maple* Provides Lowest Maintenance, Upkeep and Cleaning Cost of any Flooring we know of"

says R. L. F. BEISEMEIER,
Supervising Engineer

←THIS FLOOR 2 YEARS OLD
In this corridor at New Trier Township High School, the Hard Maple floor was laid in 1938. Armstrong, Furst & Tilton, Architects, Chicago.

THIS FLOOR 40 YEARS OLD In the Science Classroom the Hard Maple floor was laid in 1900.

● Beautiful New Trier, on Chicago's exclusive North Shore, has had many additions in its 40-year history.

As a result, this modern school has in use today Northern Hard Maple floors that are 40 years old, others 30 years old, 10 years old, and 2 years old, and some that have just been laid this summer!

Naturally this standardization is caused by just one thing: constant satisfaction with Maple—satisfaction enhanced by intelligent care.

"During the past 10 years," says Mr. Beisemeier, Supervising Engineer, "we have followed a plan whereby our Maple floors are lending themselves to the lowest maintenance, upkeep and cleaning cost of any available flooring material we know of.

"Twice each year we give them a thorough treatment. In between these periods, brushing alone keeps them neat and clean. We never scrub our Maple floors or apply water in any form."

. . . Properly cared for, Northern Hard Maple offers everything a school wants in floors—lowest cleaning cost, lowest maintenance cost, and lowest cost per year of service—as well as dry warmth, smooth resilience and unequalled sanitation. Ask your architect.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1780 McCormick Building, Chicago, Illinois

See our catalog data in Sweet's, Sec. 11/78. Write for photographic folder, and leaflet on heavy-duty finishes for old or new floors.

Floor *with* MFMA Maple

REG. U. S. PAT. OFF

(NORTHERN HARD)

VOL. 102
No. 1

THE AMERICAN School Board Journal

JANUARY, 1941

A Periodical of School Administration
Published on the first day of the month by
THE BRUCE PUBLISHING COMPANY
540 No. Milwaukee St. Milwaukee, Wisconsin

Central Office: 66 E. SO. WATER ST. CHICAGO, ILL.
Eastern Office: 330 WEST 42ND ST. NEW YORK, N. Y.
Pacific Office: 580 MARKET ST. SAN FRANCISCO, CALIF.

Table of Contents

Cover: Entrance Detail, Newark High School, Newark, New York
School-Plant Surveys 17
H. W. Schmidt
Let School Boards Beware of the Architectural Hypocrite 19
Gregory Cooper
Economy, True and False, in School Buildings 21
Warren S. Holmes
Avenal Breaks with Tradition 23
William F. Kimes
Should the Old Schoolhouse be Remodeled? 25
Walter H. Kilham
Plan Integration in High School Buildings 26
John E. Nichols
Meeting the School-Building Needs of the Socially Under-Privileged Areas of a City 29
L. J. Hauser
William B. Ittner: His Service to American School Architecture 30
Marie Anderson Ittner
Minimum Requirements for a Health Room in a Small School 32
Carl A. Roos
Built for Pupil, Teacher, and Citizen 33
William R. Barry
The East Elementary School, Galion, Ohio 37
Junior-Senior High School Completes Six-Six Plan for Newark, New York 40
Harrison's New Five-Year High School 44
Robert P. Vignola and Louis M. Klein
The New Senior High School at Billings, Montana 47
Color in the Schoolhouse 50
C. T. Masterson and W. G. Darley
A Rural High School Shop and Classroom 52
Louis M. Roehl
La Crosse Builds an Adult School 54
John B. Coleman and W. F. Oppermann
Richmond Builds Second Baker School 59
Forbes H. Norris
Standards of School-Building Construction as Affecting Maintenance 61
Raymond V. Long
Better Daylighting in the Classroom with Proper Fenestration 62
W. J. Slavin
The Continuous Building Survey Experience of the Chicago High Schools 66
John W. Bell
An Inspection Blank for School Buildings 73
Classroom Teachers' "Pet Peeves" About School Buildings 76
Heber Hinds Ryan
Economy in the Operation and Maintenance of School Plant 79
James R. Newman

EDITORIALS:
Better School Buildings in 1941 64
Federal Teachers' Pensions? 64
School-Building Insurance Programs 65
School Boards and Other Public Offices 65
Being Too Patriotic 65

School Law 70
Teachers and Administration 83
School Administration News 87
New Books 89
Publications of Interest to School-Business Executives 93
School Board Conventions 94
After the Meeting 110
School Buyers' News 110

The Story of School Architecture

Anyone who has followed the progress of school architecture during the past five decades will find that it tells an attractive and illuminating story. It began with the old-time itinerant architect, who traveled over the country carrying a bundle of highly-colored drawings under his arms and in words of eloquence persuaded school boards to bargain for his product.

And what did this mean? It meant that the school was fitted into a set of floor plans accompanied and embellished with an ornate exterior. Festive towers and turrets and high roofs, all of which would in later years involve expensive repair bills, were provided.

But, with the passing of time, there came that progress and understanding which contemplates the school and its work as the unit around which the housing was reared. In other words, the housing was to be fitted to the school, rather than the school squeezed into an undigested stock plan.

Then there came upon the scene the professional school administrator, competent to outline the organization and instructional needs of the school, and to formulate in general terms the building facilities needed to achieve the objectives of the educational program. With the cooperation of the school boards, highly trained and experienced architects were employed to translate the building needs of the school into structures economical and efficient in plan. These architects led in the solution of problems of lighting, fire safety, heating, ventilation, mechanical equipment. They studied the housekeeping side of the school plant. Exterior designs became simplified and at the same time more dignified, more stately, and more beautiful. They utilized the offerings of science and of American industry in the form of new materials, safer construction, and more economical finish.

The result has been that no country in the world has made greater achievements in the field of school architecture than has been made in the United States. In point of interior orientation, in exterior grace, dignity, and equipment it may safely be said that the American school architecture is a distinctive and magnificent achievement such as no other country can claim.

In saying all this, we may modestly add that during its half-century of service, the AMERICAN SCHOOL BOARD JOURNAL has made a contribution to the progress made in school architecture. No other magazine has given more space during these many years in exalting the best thought and practice in planning and rearing modern school structures.

William George Bruce, Editor.

Copyright, 1941, by the Bruce Publishing Company. — All rights reserved. Title registered as Trade Mark in the United States Patent Office. Entered as Second Class Mail Matter in the Post Office at Milwaukee under Act of Congress of March 3, 1879.

SUBSCRIPTIONS. — In the United States and possessions, $3.00 per year. In Canada, $4.00. In foreign countries, $4.00. Single copies, not more than three months old, 35 cents; more than three months old, 50 cents. Sample copies, 35 cents. January Building Number, 50 cents.

DISCONTINUANCE. — Notice of discontinuance of subscription must reach the publication Office in Milwaukee, at least fifteen days before date of expiration. Notices of changes of address should invariably include the old as well as the new address. Complaints of nonreceipt of subscribers' copies cannot be honored unless made within fifteen days after date of issue.

EDITORIAL MATERIAL. — Manuscripts and photographs bearing on school administration, superintendence, school architecture, and related topics are solicited and will be paid for upon publication. Contributions should be mailed to Milwaukee direct, and should be accompanied by stamps for return, if unavailable. Open letters to the editor must in all cases contain the name and address of the writer not necessarily for publication, but as evidence of good faith.

The contents of this issue are listed in the "Education Index."

Member, Audit Bureau of Circulations and Associated Business Papers.

School Boards the Nation Over Depend upon Burroughs for Up-to-Date Accounting Records

Boards of Education, large and small, find that Burroughs machines provide records that guide the daily administration of the school system and supply prompt and accurate reports for board meetings and governmental requirements. With Burroughs machines they obtain complete, up-to-date records of fund receipts and disbursements, as well as expenditures and balances—by accounts, schools and activities. And, of course, they also find that Burroughs machines do the work in less time, with less effort and at less cost.

To find out what Burroughs machines can do for you and save for you, telephone your local Burroughs office. Or, if you prefer, write—

BURROUGHS ADDING MACHINE COMPANY
6012 Second Avenue, Detroit, Michigan

Burroughs

THE AMERICAN
School Board Journal

Volume 102, No. 1 JANUARY, 1941 Subscription, $3.00 the Year

SCHOOL-PLANT SURVEYS

H. W. Schmidt[1]

If anyone has ever had anything to do with a job as implied by the title of this paper, he will appreciate the headaches which are concomitant factors of such surveys, to say nothing of the dozens of variable features surrounding the work — if any *reliability of the results* of such surveys are to be attached thereto. This by way of a preamble to a topic which is increasingly on the boards and which is assuming rather large proportions in our educational planning. Of course, many, nay most, school systems are still operating and expanding their physical plant on a kind of "hand-to-mouth" system which, in a measure, defers the "indigestion" to a later period, but in most instances it *is* simply a deferment. However, quite a few are reorganizing the early symptoms of education disorder, to carry on the simili, and are taking measures to stave off the more painful results, and one of these measures of prophylaxis is a school-plant survey. So let us look into the matter a bit and see what it is, or rather may be, all about.

The magnitude of housing something like 28,000,000 school children is a stupendous one and, as stated previously, is too often taken lightly by many agencies, local as well as those broader in scope. The sums involved yearly are of the order of hundreds of millions of dollars both for rehabilitation and for new structures. One may therefore well consider a more or less hit-and-miss method as definitely unjustifiable and, if possible, a more careful and scientific attitude developed to take its place.

One may wonder whether the heavy tax burdens of the past decade, for example, assumed for new buildings, gymnasiums, school auditoriums, expansions, and other features, are always warranted when one gets down to fundamentals. How much of this is defensible? How much is based upon careful *unbiased* study of each situation? And how much is a matter of "keeping up with the Jones"? It is believed, and hoped, very little of the latter, but nevertheless — one *could* cite examples.

[1]Department of Public Instruction, Madison, Wis.

The Need for Study

Again, these are parlous times and we are certainly in a transition period with its tremendous impending problems of both social and economic import, when even our democratic form of government is in question; one may, therefore, not wonder that all of these problems have their bearing upon our whole educational system which may or may not be called upon to make fundamental changes so that it may fit into and contribute more effectively to any impending change in our democratic way of living.

It is, of course, evident that the school plant is not the whole story and is to be considered in the nature of a means to an equitable educational end. At the same time, even a forward-looking educational program is of no practical use unless the physical means to carry it on are provided — and the means must be in keeping with this program, both present and even more important, the future one. And so the school plant survey comes into being and projects itself into the whole educational picture.

The various elements which must be considered in such a survey are many; some are objective and quite obvious, others are more subjective and in a measure somewhat obscure while some, and these may be of definite importance, may even be speculative and still have a very definite influence upon the whole situation. Not only is the present involved but, more important, the future as we at least attempt to get a glimpse into it — and our philosophy may have to undergo a change at that.

In the past, it is suspected and in many cases known, that a good many factors have led to waste in developing a school-plant program. Just to mention a few: lack of vision and imagination, an absence of a philosophy of education, neglect to make allowances for a changing social order and emphasis, neglect to study population trends, instability of controlling administration, too much "superintendent," improper financing, lack of centralization and catering to purely local demands, et cetera, to mention just a few and neglecting to even touch upon other more specific and objective features of the "innards" of a school plant. A thorough school-plant survey should and *does* take into consideration, these and a large number of other factors. But to be more specific. Among the many features to be studied, analyzed, and recommended there are about 10 factors which are of prime importance, and the balance of this paper will be devoted to a brief statement about each.

Specific Features of a Survey

1. Though a survey staff is not always in a position to carefully study the existing philosophy underlying the school system, if there is any such, yet it becomes imperative to know something about it and also to determine whether a change is indicated (and to defend such a change) or if the school system is operating under a system or philosophy in keeping with either modern trends or to meet specific local needs.

It goes without saying that a system in a rural area has different objectives and requires a different setup than one catering to an industrial clientele; the implications are obvious even if all the children should be "educated for a democracy" — differences do exist. Of course, we are on a somewhat debatable and controversial subject, yet determination there must be if the survey is to have any validity and its findings are to have any weight.

2. If the above point has been settled, we must see what the administration consists of and if changes in it, both as to policy and personnel, are necessary or if proper adaptations may be made. Usually little difficulty is encountered here *if the administration is in sympathy with the findings or recommendations.* If not, the whole survey structure may collapse at this point.

3. Next in order we must make an inventory of the school plant as a whole. The difference between an industrial or commercial inventory and a school-plant inventory is, of course, obvious — in one case evaluation is objective and definite, mathematical; in the other case it is, in a measure, very objective.

The various "score cards" available help us out and give an easily comprehended and comparable "value" to a school plant.

4. A careful analysis of score cards will then determine the fitness of the present plant to meet the desired conditions, whether it is such that it be continued indefinitely as an integral part of the system, whether defensible changes are involved or whether parts of the plant as a whole are to be discarded. The latter seems to be most difficult for school authorities to swallow. Too many interests are involved as a rule, all the way from sentimental regards of the "old red school" to the cry of financial waste. Oh well, we have all been through this stage and have survived the criticisms!

School Population and its Housing

5. We are then confronted with the relation of school population to school capacity, and this entails a study of school population statistics of various kinds. Capacity determination for elementary schools is comparatively easy if we make defensible assumptions; the secondary school situation is not quite so easy as there are a number of variables involved such as the curriculums, class sizes, number of periods, subject selection (often of the "steered" type), room use, etc. However, there are available formulas which give quite accurate results.

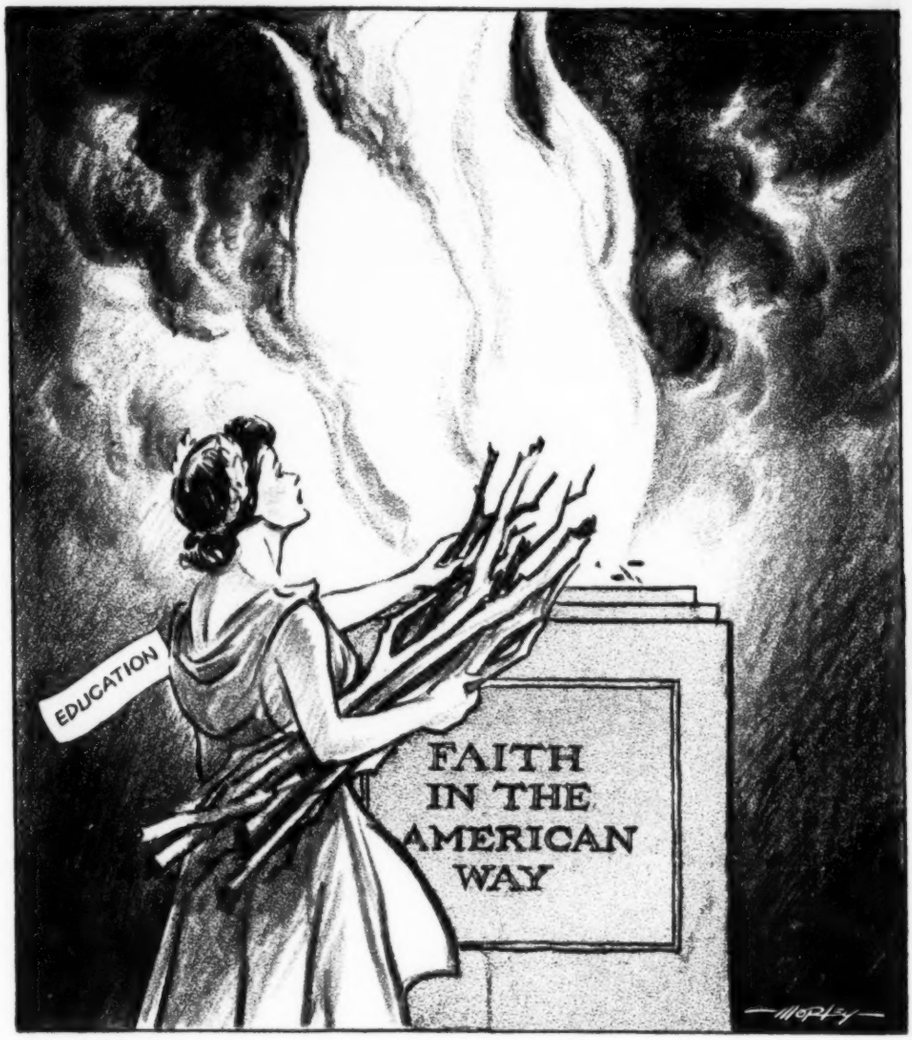
6. School-population distribution is also an important part of the investigation. Centers move, industry develops, zoning calls for shifts; and then we may have a river which splits a community, or some live on the wrong side of the railroad tracks and other such local features; all have a bearing upon the problem.

Here is where a "spot" map is absolutely necessary if the community is of any size. We mean maps showing the residence of each pupil, such maps to be divided by school groups, as may be required. These give a very objective picture of the whole school population and show important relations of the groups to local topography, traffic, location of schools, and other features.

The Elements of Prognostication

7. We now come to what many consider the crux of any school-plant survey and that is a look into the future which may develop into a problem of "seer-dom" or some such abstruse factor — validity is a matter of judgment based upon a number of factors to be briefly discussed, but the probable error, to speak statistically, is likely to be very high, depending upon the data used. You know the old saw, "figures don't lie, only the fellow who uses them." At any rate, let us see what we have available.

a) Population trends is one factor, but the United States Census, the only valid and official one, is available only in 10-year intervals, and local ones, usually sponsored by the "commercial club" or chamber of commerce are not accurate and oftentimes colored by local desires. Of course, a steady growth for several decades has prognostic value if local conditions do not change materially in the interim.



KEEPER OF THE LIGHT

b) Then we have the housing trends to fall back upon, and building permits are also indicative of trends, other things being equal. Spot maps here will also be valuable to show shifts in residential areas.

c) At times, great importance has been placed upon the records of public utilities, water connections, new telephone installations, etc., but experience seems to show that we are likely to place too much confidence in these data. They have their value, true enough, but as to their validity as mathematical prognostication elements, well, that is another matter. We can also use other indexes, but after all the mathematical outcomes of any formula are no more reliable than the data upon which the latter are based. So circumspection is indicated here.

d) The birth-rate curve should be brought into the problem, of course, but if one saw, and used, the curve for a period of 10 or 15 years and attempted to relate this to the school population as the crop of youngsters appeared in school, six to seven years hence, he would again be confronted with definite inconsistencies. But these curves are by no means valueless. A lot of social elements are wrapped up in this package.

e) The economic and industrial situations also influence our judgments and again must be taken with a grain of salt. Industries fold up unexpectedly at times; then we come across expansions and new growth and also just the status quo. How about our present world situation? Postal receipts have also been used as criteria, as well as bank clearances and general business indexes. But as to their validity, that is another question.

f) When we really delve into the problem of the future, we shall have to admit that much of our reasoning is guesswork at the same time the various elements discussed are by no means to be totally discarded, but must be used by the survey staff to the best of their judgment.

Relation of Present and Future

8. Our next step is to relate the various elements developed into a situation as a whole and superimpose upon it the present conditions, administrative, educational, and physical and see where this relationship leads us. Usually the two pictures do not fit one upon the other; there may be a shortage of buildings; they may not be located strategically to serve the school population advantageously; there may be some structures left high and dry, others overcrowded and the

whole setup be out of step with contemplated educational changes and philosophies.

Here the nub of the whole final problem lies, and the experience and good judgment of the surveyor will come into play. He may get grandiose ideas and envisage the future in glowing colors or he may be "scotch" and skimp at all corners. If he is wise, he will carefully balance all his data and give a defensible program which will take care of the present situation and allow what he will consider a reasonable leeway for the future — not too far ahead, possibly for a period not exceeding, let us say, 10 years. He will also plan so that future expansion may take place without any serious changes and withal will recommend *a plan which is attainable*. It seems futile to make a study, recommend a plan which is fine and then say, "Of course, you can't finance it, which is too bad, but there it is." Oh yes, such reports have been seen and read.

The Problem of Finances

9. Finances has just been mentioned, and though it is near the tail end of the procession of factors it is actually the most important — it makes the wheels go around.

A careful study of the financial situation must be made as a matter of course because after all the ability to finance any program is paramount to the whole subject. Some school systems are separate municipal entities entirely independent of all others for their fiscal programs; some are an integral part of a city or other system and their budget is subject to approval or revision at the hands of other agencies. Nearly all are subject to statutory debt limitations, but there is a wide variation in this; in some communities certain features of bonded debt which are self-liquidating are not chargeable to their limitation, while in others all amounts are involved.

Again the tax rate is often a limitation, and tax delinquency is also to be reckoned with; assessed valuation, a definite variable, is sometimes involved. In some cases material sums in terms of various aids may be counted upon, and quite a few communities receive special aids for building purposes only.

Aside from all these objective matters there is the attitude of administrative bodies and agencies to be considered, and one may not at times be too optimistic about the whole matter; school administrations too often have to fight for bare necessities, and an extended program of improvements may meet with, let us say, passive resistance or even death. No, the matter of finances is of first importance in most instances and must be reckoned with even to the extent of modifying an otherwise defensible program. Better a half loaf than none at all? Quite possible.

The Report

10. The matter of presenting a school-plant survey is quite an important one. Long theoretical discussions and detailed minutiae calling attention to one overcrowded room, a stone on the playground, a cobweb here and there or the lack of a dental suite in a high school are out of place in such a report except as they are definitely called for by local authorities or are features detrimented to the health or safety of the school children.

A terse, orderly presentation of the main facts are much more likely to receive favorable consideration than a long-winded dissertation; one must remember his readers, and the professional man is certain to be a small minority — it is the large mass of lay readers who hold the purse strings and who need to be enlightened. One is reminded of a certain school-plant survey of 237 printed pages which had 177 pages devoted to such items as school-board meetings and minutes, the business methods and records, the board and teaching personnel, and other trivia which had little to do with the survey subject. It antagonized the school administration, cast reflections upon the survey staff, was read by but few (the general public was not interested in reading it) and withal cost the community a pretty penny, a four figure sum. The net result was virtually zero.

Of course, the recommendations contained in such survey reports are usually not mandatory and may be accepted or rejected or modified as local authorities decide. Often such recommendations *should* be modified as no survey staff can know the undercurrents of opinions and situations flowing in a community; on the other hand, very few if any such reports merit wholesale rejection. If carefully made on the basis of all available pertinent data and facts, the recommendations should carry weight and receive, on the part of the school authorities and public, just as careful consideration as supposedly was given them by the survey staff.

It is, of course, to be understood that the above technique is not the only one which can be and is used; at the same time over 50 such school-plant surveys participated in by the writer show the value of the general scheme and, in most cases, the acceptance of the reports with a "batting average" of about .800 as regards carrying out the recommendations made.

In conclusion, it is to be remembered that this brief presentation of a matter which may involve literally hundreds of thousands of dollars in a single instance, cannot go into the many details fundamental to the whole matter. Nor has any statement been made as to the responsibility the survey staff must feel in making their recommendations. It may be said, however, that such responsibility *is* felt by a careful and conscientious staff. Again the ultimate value of a report is dependent in a great measure upon the makeup of the staff — confidence in their ability, their integrity, and their unbiased attitude. Let us not minimize these elements; they have a definite influence upon the authorities for whom the survey is made.

It is hoped that this presentation or rather overview of what is involved in such a study may help the reader to appreciate what a job it is to undertake a school-plant survey — but it is fun, nevertheless, and also an eye opener.

Let School Boards Beware of the Architectural Hypocrite

Gregory Cooper[1]

Never in the history of this country have the people been so conscious of the difference between what is true, what is partly true, what is misleading, and what is false. We are constantly bombarded with propaganda from the Orient, Europe, the home government, and from "high pressure" advertising. Architects often distort or even falsify facts in order to sell their designs; we are surfeited by poor and indifferent architecture because practicing architects will not admit their ignorance even to themselves. Truth in architectural design is the mightiest of weapons; it results in beauty, economy, and adaptability to use. For the sake of truth, I will not write that this is more true in schoolhouse architecture than in other lines, but too many of our school buildings contain glaring defects. The interior of the beautiful Harkness Memorial at Yale University is, to the students, a hideous, dark dungeon. In order to criticize intelligently we must remember to the very end that school buildings are built to protect against the weather; and to centralize several units, each of which is an individual center, for the assembly of groups of pupils to receive instruction.

[1]Architect, Boston, Mass.

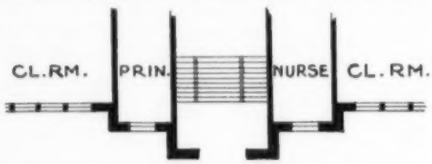
The school plan must be designed flexibly and specifically to furnish the necessary units properly arranged for a definite number of pupils and for a growing program of education. It must facilitate the movement of pupils. The man who cannot plan for these is no school architect. All buildings, schools included, must adequately protect from the temperature (in some climates heat, in others cold), the moisture, wind, and sun. All buildings must be easy and economical to maintain.

Common Problem: Common Solution

My criticism of the modern functional school of architects is that *they do not practice what they preach*. A certain town decides to build their long-wanted and much needed new school. A building committee consisting of the school-board members and one or more citizens is selected; the superintendent of schools is invited to sit in at all meetings to make a preliminary educational survey, and to act as adviser. The committee selects an architect who is a graduate of one of the leading architectural schools; he has traveled extensively and is very much interested in his profession; he is enthusiastic about the latest modern architecture. Mr. Architect works in con-

junction with the superintendent and principal; they collectively determine that the new building should house 16 classroom units, several special rooms, shops, and household-arts rooms, toilets, principal's and nurse's rooms, auditorium, and gymnasium. Mr. Architect thinks of a common "modern" solution and determines that this building shall be made outstanding because of the fine proportions of its units as well as of the whole structure.

A central entrance motif is decided upon with flanking classroom units terminated by projecting auditorium and gymnasium wings. The central entrance motif must dominate the structure; therefore it projects in front of and above the main façade plane. This important central motif contains a monumental flight of five steps and the principal's and nurse's rooms. It is obvious that the taxpayer's money is wasted on comparatively small room units in order to fit them into an entrance motif which is large and dominating. The space above the roof is acknowledged and obvious in its wastefulness. The projec-



tion in plan is not so obvious. Even the architect *thinks* that he has planned well by putting the principal and nurse next to the main entrance, and he fails completely to notice the wasteful use of floor area.

Mr. Architect appreciates that the classrooms, of course, are the important rooms in the building; but they constitute a monotonous repetitive motif which does not inspire him. Therefore, they are made the subservient connecting units between the gymnasium and the auditorium. These latter are essentially two large halls; Mr. Architect conceives them as being strong terminating motifs with a strong simple accent. Moreover, the exterior appearance of each individual unit and of the building as a whole seems to call for vertical accenting lines at the corners. To make these lines, the corners of the gymnasium and auditorium façades are slightly repressed behind the main central plane. In committee meeting, Mr. Architect proudly calls attention to the thrice-repeated motif with fine variation of proportion in the central entrance and two ends. What he himself does *not* even understand is that he is repeating the wasteful planning. There is nothing behind the repressed corners except anterooms and cloakrooms and a short flight of steps; therefore, material and space are wasted.

The Illusion of Functionalism

A recent school building of modern design has received much praise in the East because the architect has made wide use of glass bricks, thereby creating the extreme illusion of functionalism. The bricks, it is claimed, give "shadowless and glareless" illumination. However, after the pupils entered the school, several hundred dollars had to be especially appropriated to provide shades in order to control the blinding light on the sunny side of the building. I strongly suspect that the architect did not know very much about this fine new material because he has been inconsistent in his design. In spite of the "shadowless and glareless" argument, clear glass is installed *below* the glass bricks in the classrooms; this clear glass is shaded in the conventional manner. Entirely inconsistently he has installed clear glass *above* the glass bricks in other rooms and omitted to furnish any shades.

Another school is built in a community which, because of its historic background, seemed to require a classic motif. The architect made assurances that a "modernized classic" would not be any more expensive than a purely functional building; yet let us examine the list of wasted dollars.

Wasted	$10,000 pitched roof
	2,000 dormer windows (small, little light)
	500 cupola (expensive to maintain)
	3,000 bay windows (a decadent English style)
	200 chimney extended above the ridge
	500 areas to basement windows
	$16,200 total wasted, nearly 10 per cent of the entire cost of the structure.

Especially blameworthy are the areas to basement windows. These windows supposedly "illuminate" the shop.

My last example is a greatly admired new schoolhouse, so modern in its appearance that it might easily be mistaken for a shoe factory. It is three stories high and contains some 40 classroom units, a large multiuse double gymnasium-auditorium, and a multiuse lecture-small auditorium-community room. Admirable planning separates the noisy shops and the gymnasium, from the academic portion and the rooms of a semipublic nature. No sacrifice in usefulness and efficiency is made, yet the plan is decidedly monumental in conception.

The good monumental plan makes a perfectly symmetrical front elevation. In this elevation the front entrance motif is overpoweringly emphasized. It is four stories high; heavy pilasters cast deep shadows on adjoining classroom windows as well as on the central tower windows; it contains some 2500 sq. ft. of floor area which is wasted on a nonessential central stair running up through all three stories.

Windows of the front elevation are grouped in pairs to create units in proportion with the size of the building. These double-window units are separated from each other by heavy pilasters. Thus inside the building the windows of the largest classroom units are pleasingly divided into three groups by two large and dark pilasters. However, the windows of all the normal classrooms are divided into two ugly units by one slightly off-center dark pilaster. Identical pilasters are pleasing or ugly according to their positions in the rooms and their relative proportions. These are ugly.

The ends of the central unit of the front elevation are given an illusion of strength. Special treatment of these ends is facilitated by placing toilets here on each floor; the front wall is caused to project about 8 in., thereby making the toilets slightly longer or deeper than classroom width. The windows in this projecting wall are repressed to a minimum, thereby enhancing the strength illusion but at the same time cutting down light and air in the toilets. Utility has been sacrificed to appearance.

A Warning to Modernists

Although I have emphasized school architecture and its faults as exemplified by modern architecture, it is only fair to state that monumental design and functional planning are as old as Egypt; mistakes are also as old as Egyptian structures. *The mistakes can never be corrected until they are recognized and acknowledged.* The last monumentalists were the Renaissance architects of the Ecole des Beaux Arts. They are criticized by the present fashionable modernists because, it is claimed, they subordinated use and cost and maintenance to unity of design and balanced symmetry and conventional use of decoration.

Architectural decoration was nonexistent for thousands of years; the prehistoric man who first decorated the walls of his cave in southern France was comparatively of an advanced civilization. We recognize his painting as an effort to beautify. He may have been consciously recording the appearance of contemporary animals for posterity. But it is much more likely that he was expressing an urge to reproduce what interested him. His type of decoration is popular today in the form of mural painting and photomural work, both of which are especially suitable to the large plane surfaces of contemporary architecture.

The adornment of a plane surface by mural work is to my mind as much architectural decoration as any. But does it emphasize the structure? Greek moldings are supposed to express the stresses and use of the structural parts of the building. This is the thought behind all classic architectural decoration; it must emphasize and express the use of the parts decorated. It does not increase usefulness; it does increase beauty. Classic styles of architecture have been in the ascendent for five centuries, but they have become unfashionable because architects wasted billions on decoration which had no meaning and which did not beautify. The modernists believe that the building should be entirely dedicated to its use and that beauty may be obtained through refinement of proportions only. I sympathize with this school of thought, but I warn these architects that all that is good in modern functional architecture will be lost. Modern architects repeat the mistakes which they simultaneously criticize. This hypocrisy is bad enough, but failure to recognize their mistakes as such, and to praise their meaningless motifs is most abhorrent ignorance; fortunately, the best lives on while the worst sinks into oblivion.

Economy, True and False, in School Buildings

Warren S. Holmes[1]

The cost of school construction in the United States varies a great deal. Part of this variation is legitimate. The cost will inevitably be higher in cities that are highly unionized. It is often legitimately boosted by more extensive provision for instruction or by the incorporation of better materials and design in the plans and specifications. Thus some communities spend comparatively large sums for the housing of their pupils and receive proportionate value for the money spent.

Many communities, however, fail to achieve good results, regardless of whether they spend little or much, because of poor management and poor planning, and because the factors of building costs and adaptation of buildings to use are so complicated as to be difficult of analysis.

The matter of determining plans for a school building appears on the surface to be comparatively easy — so much so, in fact, that the layman school official habitually tackles the job without a qualm.

Likewise, architects, in general practice, regularly solicit commissions to design school buildings without appreciation of the fact that the problem is different from that of other classes of buildings, such as residences, apartments, or business buildings.

These customs are the remnants of a philosophy of education based on a firm belief in the three R's as the fundamental requirements. It endorsed the tradition of Mark Hopkins and the log — any good building should well serve the purposes for a school. The important consideration was the teacher.

Today these principles have become fallacies of grave import to democracy, for we no longer live in the age of Mark Hopkins. Democracy looks to the school today for most of the work necessary to make efficient men and loyal citizens of its youth. Health, interests, appreciations, discipline, loyalty, understanding, responsibility, dependability, and now, self-sufficiency which carries with it concrete preparation for useful work. These are the responsibilities thrust upon the schools for which the public is willing to pay liberally. These are the functions which have made education and school-building design specialties of the first rank where lay performances are fraught with results just short of disaster. No school official would think of making up a bid from architects' plans and specifications. This is recognized as a complicated and specialized task requiring training and experience, and yet how simple as compared with the task of determining what these plans and specifications shall be to meet the needs of education.

[1]President, Warren S. Holmes Company, architects, Lansing, Mich.

The Contractor's Part

As evidence of the complications involved in knowing what a building will be like from a set of blueprints, it is interesting to note that experienced contractors do not see alike from the same plans.

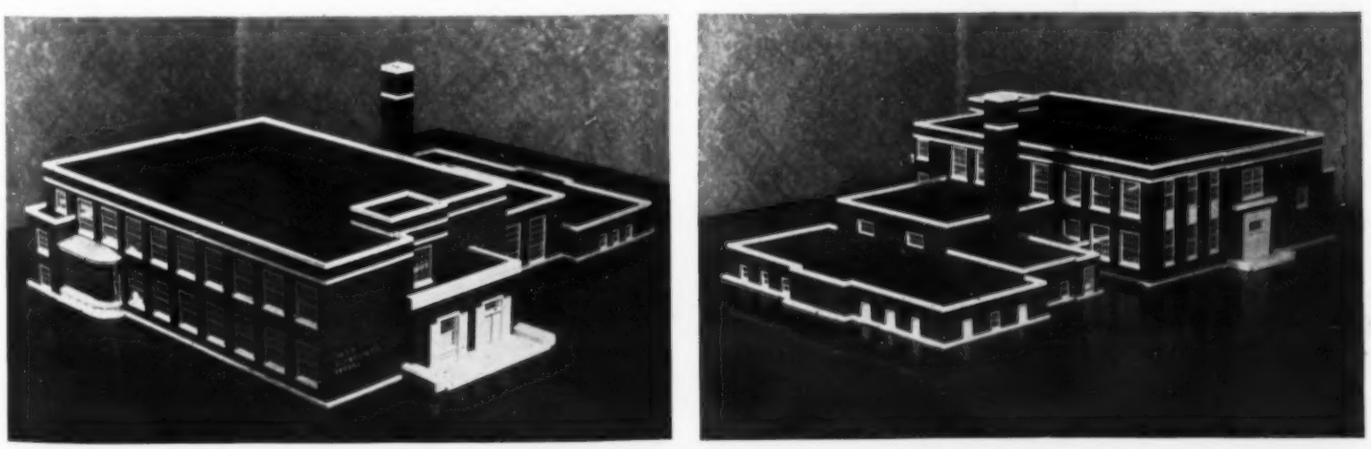
Bids received for a new school building commonly vary as much as 10 per cent between the highest and the lowest. Not uncommonly the low bidders are 10 per cent lower than the average of all bids received. It is fair to assume that the low bidders make profits equal to, or even greater than would have been made by some of the higher bidders. The criterion for this difference is *efficiency*, pure and simple.

Contracts were recently awarded for the Malcolm Elementary School at Sault Ste. Marie, Mich., where the figures of the successful contractors were considerably lower than those of certain other contractors submitting competitive bids. There was the usual talk of the low bidders "losing their shirts." But not so; it was easy to see how they would win out. They received permission to start wrecking the old building the day after contracts were awarded. They discussed the details of the foundation construction with the architect and secured approval of the face brick before he left town. They provided a skeleton crew of hardy northern mechanics — Norwegians, Germans, Finns, etc. — good workmen, that saw alike with the contractor and did not quibble about a few minutes extra time on a day's work if it was necessary to progress. The contractor proved to be a good organizer and a good buyer. Requests for approval of subcontractors and approval of shop drawings came into the architect's offices promptly and materials were delivered when required. The roof was completed and the building closed in before snowfall in an almost unbelievably short time. The workmanship was always good and the supervision adequate. No work ever had to be torn out and rebuilt.

Management represents the difference in these bids. If this degree of specialization and good management is necessary to efficiency in carrying out plans and specifications, how much more important becomes the preparation of these plans! The die is cast when plans are complete and contracts awarded. Economies thereafter are seldom possible. A wealthy Michigan donor recently spent $25,000 in extras to correct deficiencies in plans for a new school which had not been carefully adapted to the purpose. The prudence of this expenditure is not to be questioned except that it certainly does not represent an economical procedure.

The Experience of Two Schools

Let us discuss another real situation where the economies to be effected by management and planning were paramount. Two Michigan cities of comparable size, both of which might truly be classed as either progressive or conservative, grabbed up the bait offered by PWA grants and erected magnificent new



Architect's scale model of the Malcolm Elementary School at Sault Ste. Marie, Michigan. — Warren S. Holmes Co., Architects, Lansing, Michigan. — The completed structure followed the model accurately.

Bookcases and storage cabinets as well as display cases in elementary school buildings must be planned to be easily accessible to small children who will use them.

12-room elementary school buildings in 1934–35. For convenience we shall designate them as City *A* and City *B*. These two cities thought and acted very differently about their new schools and finally achieved entirely different results although there is evidence to believe they were equally conscientious.

City *A* was generous with Uncle Sam's money (and its own) and spent $168,000 for its building. City *B* adhered to its background of thrifty traditions and constructed its building for $115,000. Now the two buildings are comparable in all aspects of use. They have classrooms of the same size and number, the same size playing floor for the gymnasium-auditorium, similar types of construction, same thickness of outside walls, comparable hardwood trim and finish, floors of terrazzo, linoleum, and asphalt tile; also similar mechanical equipment including automatic-clock systems, radio public-address systems, etc. Wage scales and building costs are the same in both localities, but there is not the difference in cubic-foot costs which the total costs would indicate. Economies were effected in the school erected by City *B* in eliminating unnecessary corridor and unnecessary height of gymnasium and depth of heating plant, etc. Thus it develops that cubic-foot costs are often most unreliable in comparing school-building costs. At this point similarities cease and the differences become very marked.

City *A* erected a conventional building most conservative in some respects. The new building covered a large proportion of the site, leaving little more than a side yard for playground. The classrooms, including the kindergarten, are all of standard size with wardrobes opening off same. The heating is with exposed steam radiators and piping, and the seating is movable desks. One color scheme predominates throughout the building, the keynote of which is a green tile used for wainscotings of stairs and corridors, and for the walls of toilets and the gymnasium. This tilework is reported to have cost a mint of money and gives that appearance. The building has a flat roof, with two entrances identical in design, each carrying a large stone label bearing the name of the school. One of these entrances has a foyer which is designed to serve the gymnasium when used by the community on state occasions.

Typical classroom in a 12-room school building erected by City "B." The speaker of the public address system is combined with the clock.

Planned for Wider Use

City *B* departed from all traditions and went the limit in incorporating design features that add to the school's function of making the greatest possible appeal to teachers and pupils. The old school site was enlarged and the building was erected at one end, leaving the other available as a playground adequate for both school and community use. The risk of incurring charges of fads and frills in the building was ignored, and beauty and utility were incorporated wherever space permitted. The exterior design was made distinctly Colonial, with a colored-slate roof to emphasize the residential aspect of the neighbor-

(Concluded on page 99)

Main entrance of the addition to the Avenal School showing the successful connection between the modern and the older architectural forms.

The wide, low-ceiled corridors showing the single tier lockers with the continuous well lighted display cases above.

Avenal Breaks With Tradition

William F. Kimes[1]

"Gee, isn't that swell!" exclaimed a second-grade boy as he stepped into the hall from the bus landing the morning classes opened in the new addition.

The lad wasn't the only one to feel happy about the new rooms. The feeling was general, not only among the pupils, but the teachers as well. A second-grade teacher commented after the first week of school that, "The rooms are exceptionally quiet; no noise can be heard from either the other rooms or the hall when the classroom door is closed." This same teacher went on to say that the cupboard space and storage area are certainly everything a teacher could ask for.

Another teacher commented that, "There aren't enough favorable adjectives to describe it." A third-grade teacher said, "The work tables on wheels are perfect." What did they see to bring forth such exclamation?

The first feature is the wide low-ceiled corridor with a gray asphalt-tile floor bordered with blue. Blue corridor walls halfway to the ceiling are stopped with a silver stripe. A very light blue, so light in fact, it appears white in contrast with the blue of the lower wall, completes the hall painting. The corridor ceiling is of a buff acoustical plaster.

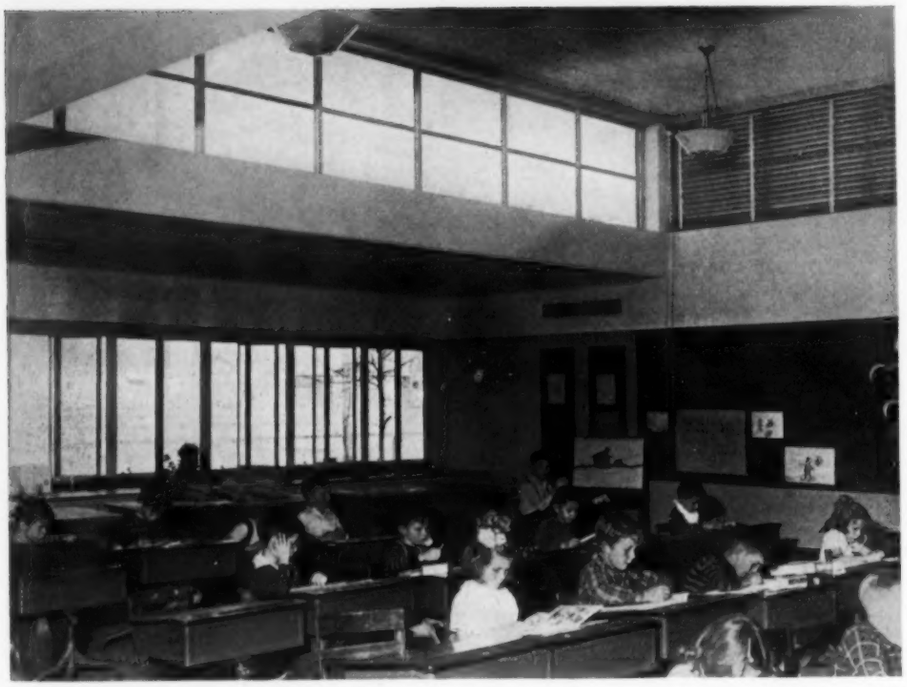
Opposite each classroom door is a recessed window seat. Along the classroom side of the corridor are single tier lockers with a lighted glass display case above.

Inside the classroom the most striking characteristic is the cheerful, evenly, lighted condition of the room. This has been achieved by a combination of several "breaks" with the traditional rectangular room. The first point observed is that the room is square in shape. Even lighting has been brought about by a clerestory window, 4 ft. by 13 ft. on the east. On the north is another window at the same elevation as the east window. This window is the same width as the east window, but is 20 ft. long. The light from these windows reflects from the 13-ft. ceiling of cream acoustic tile to the desks below. All of the upper walls are a very light green, while the lower walls are a foam green. The floor is covered with a marbleized green asphalt-tile bordered by a dark-green tile.

[1]District Superintendent, Avenal, Calif.

An afternoon view of the classroom showing the Venetian blinds in the east window removed.

This elementary classroom has reversible blackboards and mounting boards and is equipped with an electric eye to turn on and off the artificial illumination. A clock, an automatic bell system, and a radio broadcasting unit are parts of the equipment.



Even lighting has been achieved by clere-story windows four feet high by thirteen feet long placed on the east and north sides. Venetian blinds are used to cut off the early morning light.

On the west side of the room are found the cabinets, bookcase, tool cart, and other necessary utility cases. The ceiling over this part of the room is 8½ ft. from the floor. Here, in a space 9 ft. wide and 32 ft. long are the library table, a teachers' desk, and reading circle.

The north end of the room also has a low ceiling. Here has been placed the work counter with individual lockers below. The entire wall area above the work counter is filled with steel windows. A steel sandbox and two steel worktables mounted on casters divide the work space from the study or auditorium part of the room. The desks used in this area are of the universal type making possible any desired seating arrangement.

The wall space above the reversible blackboard of the room (south) is filled with a mural. On the east side of the mural is the loud-speaker. On the other side are the clock and a photoelectric cell that regulates the lights so that at no time is there less than 24 foot-candles of light in the room. Individual room thermostats control the hot-air circulation system of each room.

The side wall below the east clerestory window is covered with cork as is that part of the front wall not used by the reversible blackboards.

Here then is a room that is entirely different in that it gives the pupil ample diffused light, is cheerful, is so arranged that the teacher is easily accessible to all pupils with definite areas for study, manual work, recitation, and recreational reading. Here is a room that to a large degree meets the needs as expressed by the teachers who had been attempting to develop a child-centered program in an inadequate room.

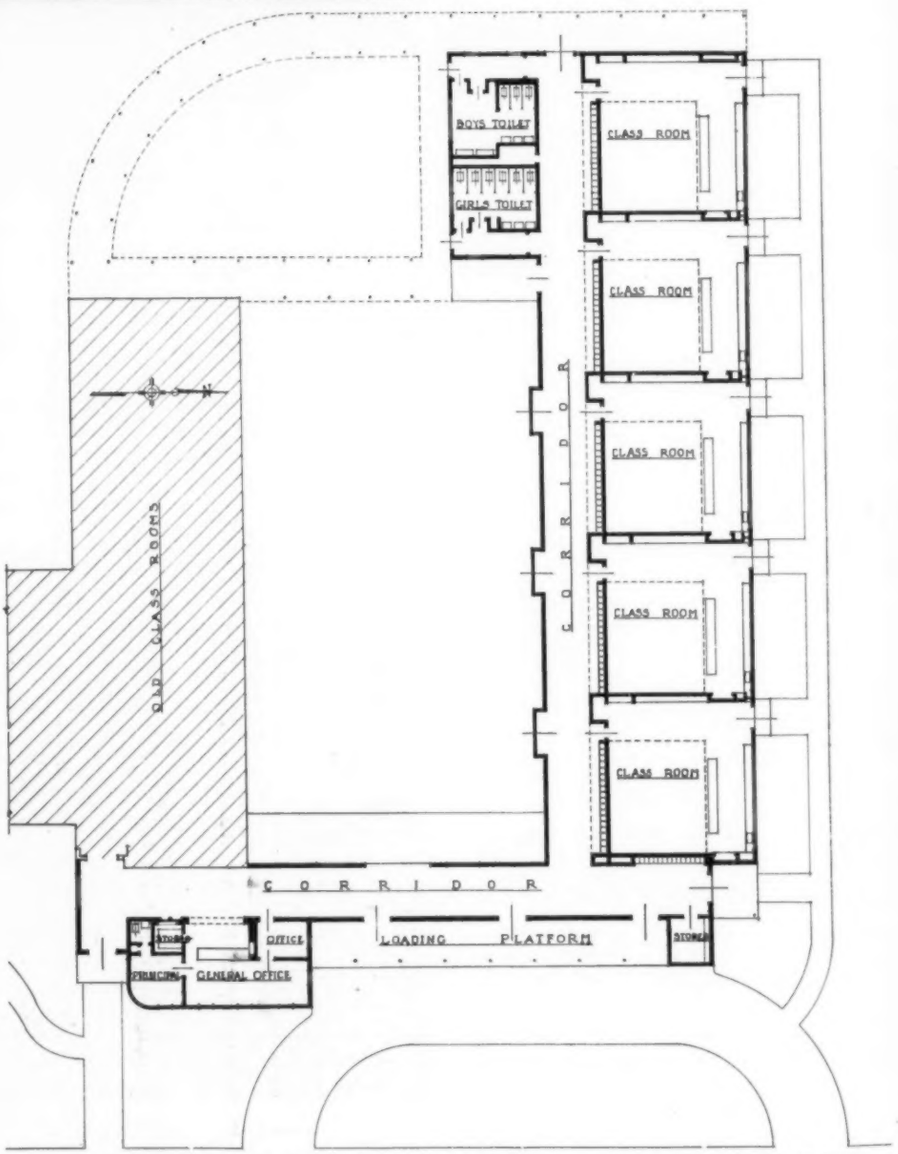
The problem of pupil safety has been solved in an interesting manner. Pupils riding bicycles park at the north end of the building and all use the north corridor door. School-bus passengers step from the buses to a covered porch which opens into the corridor. Only bus pupils use this porch. Pupils walking to school use any of the several other doors in the building. Thus the danger of accidents has been reduced to a minimum.

The school-building office opens off the hall. On the south side of the corridor opening is the principal's office, equipped with coat closet and lavatory. On the north side is the radio room which is also used by the vice-principal. One end of the central office is set aside for the duplicating equipment.

What brought about the development of such a layout of halls, classrooms, and offices?

The right combination of architect, school board, school administrators, and teachers necessary to bring about a break with the traditional schoolhouse planning seldom occurs. Persons responsible to the general public for their support are reluctant to deviate too much from that which is considered the accepted practice. This, to a large degree, accounts for the type of classroom now generally being constructed in the United States. However, in a few places, school buildings are being constructed that are definitely a break with the accepted practice.

(Concluded on page 100)



Avenal Elementary School Addition.— Frank Wynkoop, Architect, Bakersfield, Calif.

Should the Old Schoolhouse be Remodeled?

Walter H. Kilham, F.A.I.A.[1]

Almost every city and town of any size in America has in its school system one or more buildings of the type popular in the eighties and nineties, heavily built, of an elaborate, even if outmoded architecture, whose walls and structure can endure for many years to come, but whose interior arrangements fail to conform to present-day requirements. Demands of the school district's population require improved accommodation. The school board asks for a new building of modern design. A determined minority of taxpayers insists that important savings can be effected by remodeling the old one. Both advance convincing arguments. Which is right?

This is a question which arises thousands of times, and I am making an effort to answer it from an architect's point of view. Naturally from a professional angle any architect prefers to do a new building rather than an alteration, but this need not prevent a candid presentation of the case for both sides.

At the hearing which will probably be held, the advocates of a new building will doubtless say that if the old building is modernized a great deal of work would have to be done to make it suitable for present requirements. First, it will have to be made fire safe, which means metal enclosures with wired glass around the stairways and maybe fireproofing the boiler room and flues. Very likely additional stairways or fire escapes will be needed. It may be necessary to enlarge the windows, and considerable work will be required on the heating, ventilating, and plumbing systems. Probably the floors will need renewal and there will be a sizable painting job. After all this work has been completed the classrooms will still be oversize, the wardrobes will be old fashioned, and there will be many holes and corners which are difficult or impossible to clean properly. Finally, after all is said and done it will still be an out-of-date building in which the school will never be happy or take pride in its surroundings. To do all that is needed will cost at least 75 per cent as much as a new building, and it would be better business for the city to tear it down and start afresh.

Here the chairman of the school board may rest his case and take his seat amid a hearty round of hand clapping from a large group of nontaxpaying parents — while the mayor, with an air of benevolent neutrality calls on the spokesman for the taxpayers to present his side of the case. This gentleman, who is perhaps a successful businessman or lawyer has examined the building in company with an experienced builder. Together they have noted the solid foundations, the massive walls, the costly stone trimmings, and the doors and windows made of that splendid wood which somehow seems always to be just around the corner from present-day builders. They concede that the building needs new plumbing, but a new boiler and some heating units would settle the heating and ventilating matter, and a fresh coat of paint and varnish would make it as good as new. That building, says the taxpayers' spokesman, is good for 50 years more. Think what it cost in 1895. Built on honor, that's what they did in those days. These school people have a new fad every week. Let 'em teach the fundamentals and the building will be all right. Mr. Mayor, are you going to allow the hard-working, God-fearing people of this community to be robbed of their well-earned savings by throwing away this splendid structure, built to endure for generations, to satisfy a group of theorists and faddists? After more in the same line he takes his seat amid vigorous but less noisy applause from the advocates of economy.

At this point, the mayor announces that we have with us tonight our fellow citizen Mr. Thumbtack, the architect, whom the school board has retained to examine and report on the problem. Mr. Thumbtack is a respected resident of the city. He would prefer to design a new building, but as he will get something out of it either way, he is in a position to give a candid opinion. He knows what will probably be wanted and has made fairly careful estimates which have probably involved working out a rough plan for a new building in order to ascertain its probable cube and cost, and he proceeds to tell what he has found. The case is an average one and his conclusion is that to properly recondition the old building along reasonably modern lines, aside from necessary additions, will cost about 40 per cent of the price of a new building. At this the taxpayers' group breaks into discreet applause. He agrees that the reconditioned building can be used for teaching purposes for many years, as far as that goes. He thinks, however, that the present attic auditorium on the third floor is dangerous and a new one should be built outside the present building. This would add a large item of cost to the reconditioning project. The 1895 gymnasium in the basement is dark, damp, and hopelessly out-of-date, but if the taxpayers think it is good enough for their children it can be more or less modernized and made to serve.

Something should be done about the cafeteria, he thinks. The present cellar accommodations now utilized are crowded and unattractive. Even if freshened up he doubts if anybody will be satisfied with them for more than a few years.

He insists that the attic and wooden stairways must be equipped with automatic sprinklers.

The space of at least one classroom, and probably two will have to be taken to provide room for the increased activities of the principal's office, clinic, school nurse, and rest rooms. If new rooms are added to make up for this, there will be another item of cost. The teachers' rooms are too small.

The building inspector will require another stairway and there is no very good place to put it. Altogether, he things that when they take everything into consideration, in order to make it fairly comparable to other buildings in the city, they will spend nearer 75 than 40 per cent. It is not his place to tell them which course to follow, but that is the situation as he sees it.

This report fails to please the taxpayers.

The Taunton, Massachusetts, High School before enlarging represented the best thought in school architecture in the nineties.

[1]Member of the Firm of Kilham, Hopkins & Greeley, architects, Boston, Mass.

The Taunton High School after remodeling and enlarging will permit of comparisons with the design, floor plan, and standards of construction of any recent high school building.

Their leader jumps to his feet. Their building expert, Mr. Gadget has told him that all the building needs beyond the fire protection required by the building inspectors is a new boiler and some new toilets. Cafeterias! he snorts, and gymnasiums! Next they will be wanting cocktail lounges and Peacock Alleys. When he was a boy, etc. Twenty-five per cent of the cost of a new building would give this city a school building they would be proud of. Mr. Thumbtack may be all right in many ways, but his ideas are too expensive. He has talked with one of our younger and more modern architects, Mr. Celosote, who has told him that if they would replace the old high roof with a flat one and make a few simple changes the job, complete with teaching areas, lunch center, bicycle garage, theater group, heating unit, and a structural glass entrance would cost only $25,000 and be so far ahead of the times that it would take 10 years for the public to catch up with it.

The hearing continues for another hour in the same vein and then is declared closed.

During the next month the board does some spade work and in due time the forces of modernity prevail, the old building comes down and a new one is built. Was this wise? I think it was wise. One of the things which people will have to learn sometime is the law of obsolescence, which applies to buildings as much as it does to clothing. A man may have a suit of clothes in which the buttons are as good as ever, the pockets in perfect shape and the vest, in particular, nothing short of everlasting, but when the style is obsolete, the nap gone, and the glare from the shiny portions become blinding, he gets a new one, even if he is less able to afford it than our taxpayers were to afford a new school. If a building needs only new heating and plumbing, along with some smoke partitions and so on, it might be wise to do what you can with it and let the taxpayers put their money into new cars, but if its state is such that a definite feeling of gloom pervades the school, and in particular, if nothing will make it fire safe, it ought to go.

I feel strongly that we spend too much money on massive and elaborate school buildings, especially when they are of two or more stories. If a town or city wishes to demonstrate its civic pride by erecting a monumental schoolhouse, that is all right and very commendable, but times change and styles with them, and the civic monument of one generation becomes the scorn of the next. Human nature is always wanting a change. If school buildings could be of one story, of substantial but economical construction, even of wood, of a type which could be amortized and scrapped in 30 years, every one might always be enjoying the latest ideas and the reason for this discussion would not arise.

There is another phase of the question which should be considered. Sometimes when the need of enlargement is urgent and the site especially convenient, a good deal of money may be saved by utilizing the massive walls of the older structure and adapting it by removal of such floors and partitions as may be necessary to the general uses of cafeteria, administration, and perhaps even for auditorium or gymnasium, and adding the required classrooms in a new attached or enclosing structure. Operations of this sort have been carried out with a considerable degree of success, but obviously the conditions of site, as well as the plan and general design of the original building must be favorable. The subjoined photographs illustrate an operation of this sort which was successfully carried out.

As to a conclusion: assuming in general that the building is really in good structural condition, if a careful estimate of remodeling with absolutely necessary additions should reach 50 per cent or more of the cost of new construction, I would recommend the new building. But any such general conclusion should not be taken too literally. Many factors may have to be weighed; history, sentimental associations, location, population trends, and the current condition of the tax setup. The question is one in which each case must be studied on its own merits and not taken for granted. I do, however, strongly believe that we are nearing the verge of sweeping changes for the better in schoolhouse design which will have the effect of making the buildings built 40 years ago seem more and more undesirable for present uses, even after being extensively reconditioned.

Plan Integration in High School Buildings

John E. Nichols[1]

Not so long ago the very idea of devoting one's full time to supervising the planning and construction of school buildings would have seemed somewhat ridiculous to most people. It would have appeared self-evident that there weren't enough problems in that field, or problems difficult enough to occupy the undivided attention of a specialist. After all, what was there to a school building, or, for that matter, what more was needed than identical rooms strung along a corridor, with the essential service facilities tucked away in the leftover basement?

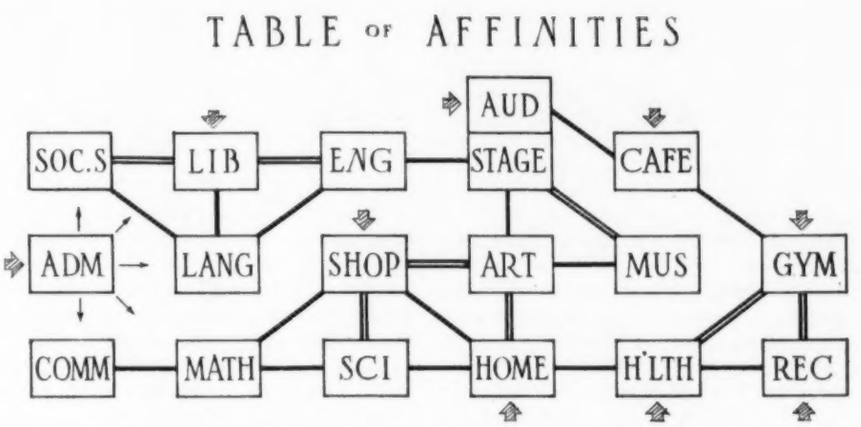
But, in one short generation, that picture has changed completely — and continues to change with increasing speed. It is a change that springs directly from the material and technical developments that in turn have altered completely the mode of human living. Our world has changed from one characterized by the self-sufficiency and independence of the individual, to one marked by the dependence of man upon machines, and the dependence of man upon man. It has become an era of specialization.

From this social upheaval there has emerged relentlessly a chain of inescapable demands upon education. The educator has been called upon to equip young people for a well-oriented and useful life within an environment that is increasingly involved and turbulent. In desperation — even confusion — the educator has done his best to meet the situation by readjustments in a system of education that was geared for the nineteenth

[1]State Supervisor of Buildings and Plans, State of Connecticut, Department of Education, Hartford, Conn. This is an abstract of a paper read before the National Council on Schoolhouse Construction, at Chicago, October 11, 1940.

century. They are readjustments that involve a shift of emphasis from the cultural and academic, to the technical and vocational, that involve additions and ever more additions to the curriculum, subdivisions, and specializations within a previously established framework.

The effect of this readjustment upon the school plant has been marked by its increasing size and complexity — due in part to increasing enrollments and in part to the need for creating new types of rooms; more and more specialized facilities for housing a widening variety of specialized educational activities. Add to that the multiplying developments in materials and techniques, and the comparative simplicity of the string of rooms along a corridor has been lost; the school-building specialist and the job he must face is created.



A diagram like the above will assist school executives and architects in developing a logical layout for a secondary school.

Duties of School-Building Specialist

His is the job of maintaining in the face of the demands of practical adaptation and sturdiness a flexibility — even a fluidity — that will permit rearranging at will the interior of the building to make way for additions to, and changes in, the curriculum. He must provide the qualities of completeness on one hand, and on the other for ready growth, either by balloonlike expansion or by the attachment of new appendages. He must provide for both unity and segmentation; a building that functions smoothly as a whole and that repeatedly may be divided into a number of separate self-sufficient parts. He is faced with the dilemma of beauty versus unadorned functionalism, immediate versus long-range economy, durability versus a low initial cost. He must maintain — and here perhaps he shines his best — he must maintain conditions of healthfulness and sanitation devoid of clinical qualities and methods; conditions of safety from accident and fire in the face of increasing numbers of pupils, a widening variety of activity hazards, and larger structures.

Indeed the school-building specialist is faced with an enormous task. And none will deny the progress he is making. Nevertheless, there appear good grounds for a growing suspicion that by and large he is in danger of (to use that now famous phrase) missing the bus. True, he has been quick to adapt (perhaps with the gentle help of the salesman) new and better products and methods — improved floorings and finishes, plumbing and furniture, hardware and waterproofing. He has been striding along with technological advances, applying himself to the ways and means of providing the best obtainable lighting, heating, and ventilation. He has reduced the sources of accident and hindered the spread of fire.

These things are fine; they're essential, but they are only the details that constitute the froth and not the substance of the school planner's job. This or that intensity of illumination, this or that degree of fire resistance, this or that ratio of toilet fixtures to pupils — all are side issues because they all have as their primary aim the production of better human shelters. Yet the provision of shelter is only incidental to the fundamental reason for the existence of the school plant — that is: its implementation of the educational program. Seven years ago Arthur Moehlman[2] put it very neatly when he wrote, "The basic purpose of the school plant is to serve as a facilitating agency *for the instructional process*. Apart from this purpose, therefore, it cannot be considered either in policy, execution, or appraisal. The school plant is functionally a complimentary activity that must be completely subordinated to the general purposes and requirements of the educational program."

In recognition of the truth of that statement the school-building specialist has indeed turned his attention to some of the subtler and certainly broader aspects of school planning. He has endeavored to answer the vociferous objections of the school administrator to the end that expansibility and flexibility and, more recently, adaptation to community use have become cardinal virtues of design. Moreover — and this is a point to consider further — he has bent every effort to augmenting the convenience of those spaces for old-established courses and to determining and meeting the every need of newcomers to the curriculum.

Here again, however, we have the provision of qualities which, essential though they may be, still are incomplete and inconclusive because they are passive. They are concerned with catching up with what has already occurred in education, whether good or poor, opportunistic or far sighted. They are qualities which are concerned with sitting and waiting for what may or may not come. In no case, with the exception of planning for community use, do they actively go forward to *meet* the changes that are bound to come in education, just as they have been coming without a letup right up to the present time.

The school that is built today generally reflects (let's be charitable) the program at the moment. That building will stand in use for 50 years. Its life will bridge extensive developments in the educational program. During all that time it will be hindering, permitting, or encouraging those developments. It itself will not change fundamentally despite the attention directed toward its expansibility and flexibility. Nor will it be abandoned until the tax-burdened citizen has become convinced that it has long since outlived its usefulness. If the school building is designed only in terms of the present — no matter how thoroughly — it will from that moment fall behind the advancing educational program, never again to catch up with it. But to fall behind means to become, to a greater or less degree, a drag upon that advance.

If we admit the truth of this statement and weigh its implications, we shall be convinced that the school plant is one of the most potent of all the instruments of educational and social progress, that the school planner cannot permit himself to become bogged down in side issues that prevent him from seeing eye to eye with the visionary who all too soon will be the mossback of tomorrow. When Mr. Moehlman goes on to say, then, that "the character and extent of the school plant will be determined *at any time* directly by the educational policies in operation and the number of children to be instructed" we must infer that by "at any time" he does not mean only the moment of the plant's conception.

It behooves the school planner, therefore, to stop often to take stock of his activities — whether he is following the meanderings of the stream or bearing steadily along its main course.

The School Administrator and the Program

Under the pressure of circumstances the school administrator, by and large, has become preoccupied with the "enrichment" of the educational program. It has been an enrichment marked not by broader interpretations and more vital applications but by pyramiding new courses, by finer and finer specializations attained through slicing old courses thinner; a process rarely relieved by cutting out the deadwood. He finds himself at last staggering — with his pupil — under a top-heavy load of disorganized, watertight compartments of subject matter. Under such a system each teacher becomes a specialist who is in danger of magnifying his own specialty to the suppression of others, looking upon his own particular field as the one of

[2]Arthur B. Moehlman, "Functional Relationships," National Society for the Study of Education, 30th Yearbook, p. 19.

greatest vital importance in life. The Latin teacher is inclined to interpret events through the eyes of Virgil, the cooking teacher to filter life through a slice of roast beef. Emphasis is placed not so much on the ends to be sought but upon the means that are fundamentally artificial because they are conceived in terms of tidy little packages of subject matter that cohere conveniently.

The pupil that is exposed to these tidy little packages is expected to accomplish what the teacher and the system fail to accomplish adequately. He is expected to carry over the experiences gained in one highly specialized activity and apply them to the performance and interpretation of other dissimilar specialized activities. Further than that, he is expected, through implication, to integrate within himself these unrelated experiences and isolated bodies of information to produce a well-rounded, self-contained personality.

That the educator is detecting a "nigger in the woodpile" is evidenced by the introduction of still other courses designed to do what the previous ones failed to do — correlate the pupil's educational experiences. We call them "orientation courses." Under the circumstances they are a stopgap. But how much more sensible and worth while it would be to preserve orientation throughout the entire educational process. Would it not be more logical to start with a unit of work to be done, a unit involving many specializations perhaps, and draw upon the specialized facilities as the need for them is naturally demonstrated. As an illustration, the school play provides wide opportunities for vital learning experiences. To that endeavor the music unit, the art unit, the shop unit, and the English unit must contribute, and in contributing the most, must work as a single unit.

Call it progressive education, the correlated program, the integrated program, the core curriculum — these are only the names for variations upon the same theme. In common they demand the dissolution of isolated, insulated, vested educational interests. They demand an unimpaired exchange of ideas and effort among all those areas of activity and knowledge that can in any way contribute to the accomplishment of the task at hand. They demand alike that all activities be centered around the individual pupil and the job to be done.

If we examine the plans that appear month after month, in our periodicals, we find them usually reflecting, quite naturally, the present state of the educational program. The accompanying photographs of the individual rooms display a high degree of adaptation to specialized activities. Yet, if the plan is viewed as a whole, it all too often bears little evidence of a principle underlying the distribution of its component parts with relation to one another. Of course, we find that subdivisions of a given educational area are grouped — commercial rooms with other commercial rooms, and homemaking laboratories with other homemaking laboratories. But these rooms are likely to be scattered seemingly at random except for attention to orientation, convenience of outside access, noise isolation, and kindred qualities that affect only the functioning of that room or group of rooms as a self-sufficient unit. In short, it becomes evident that there have been developed highly refined and polished parts for a mechanism whose basic design has been neglected.

Encouraging Unity of Purpose

In attempting to develop a plant that will encourage a unity of purpose and effort among teachers — one that will permit the integration or correlation of the educational program, it is essential that the school planner recognize the important bearing that physical relationships have upon working relationships. Perhaps a degree of correlation is possible between two disunited areas, but the probabilities are that that degree will diminish as the intervening distance is increased. We are all familiar with the difficulties that arise when two parts of a homemaking unit, for example, are separated. Over and over again we've seen good intentions come to nothing and teamwork shrivel under such circumstances. The educator has come to demand the closest co-ordination of activity among the teachers within a single educational grouping, and as a matter of course, therefore, their working areas are linked together, even to the point of being gathered into a detached suite. What is true for the component parts of a single instructional area should hold with equal force for the principal divisions of the curriculum as a whole. If co-ordination of effort is desired, it is not enough just to make it possible. The planner must go out of his way to encourage it, make it natural and convenient.

Recognizing then the fundamental principle that close physical relationships are essential to close working relationships, the planner is immediately faced with the question "which work areas should be linked with which other work areas?" The only valid answer to that question must, in the final analysis, spring from the circumstances that apply in each individual case, and from the details of the program that is established in consequence of that set of circumstances. Any single answer that is given may serve as an example, but under no circumstances as a pattern to be applied to a new set of conditions.

As for the accompanying "chart of affinities," it is not advanced as a pattern or even as an example in its present state. It may become valid only as continued study and experimentation indicate those changes and refinements that will make it workable. It is presented here only as a basis for departure. The revised Connecticut School Building Code which went to press last fall, contains this chart, or a modification of it, as a convenient reminder to architects and superintendents and building-committee members that a logical organization of units will be expected. As for the danger of their following it blindly — well, it has often been remarked that a concrete suggestion frequently awakens out of lethargy a constructive counterproposal.

Briefly, this chart shows graphically the principal working divisions of a medium-size present-day high school. These divisions are seventeen in number: the administrative unit, social studies unit, library unit, English unit, language unit, the auditorium and its stage, the music unit, the shop unit, art unit, homemaking unit, science unit, mathematics unit and commercial unit, the cafeteria, the gymnasium, the health-service unit and, outside the building but a part of it nevertheless, the recreation area.

Now ideally, each work area should be convenient and closely associated with every other work area. English, for example, should be broadened in application and fused with every other phase of school activity. There is little accomplished by cultivating grammar in one room and slaughtering it in the next. The library activities should dovetail with all others; and so it goes through the entire curriculum. Obviously, however, we are up against two dimensions of plan. The third dimension of elevation is far less useful. We cannot hope to make each work area in turn the hub of the curricular wheel. This chart, therefore, recognizes, as an actual building plan might, only those relationships which are generally most marked and active.

The type of activity we normally associate with the social studies allies itself quite naturally with library activity; as does also the work in English and, to a lesser degree perhaps, in languages. These four work areas are therefore set up as a group, with a recognized tie between English and the school stage. The stage, on the other hand, will draw heavily upon the facilities of the music unit, the art unit, and the shop. There is no well-defined point at which design leaves off and execution begins. A definite association is, therefore, indicated between the art unit and the shop. Homemaking, too, draws upon art in many of its phases and on the shop as well. The natural laws of science may be demonstrated in the science unit, but they are applied in the shop and the homemaking unit. Mathematics are applied in the work of the commercial field, in science, and in industrial arts; even to homemaking. Health service in practise should begin in the home, and this relationship is recognized here. The tie-up of the health service unit with the gymnasium acknowledges the bearing that both in common have upon the physical and mental health of the pupil. Recreation is regarded as an extension of the health and gymnasium facilities. Last comes the cafeteria. Its location is here principally one of convenience in connection with community use of the school building, at which time it is often used in conjunction with the auditorium or gymnasium.

By way of explanation perhaps I should mention that the little arrows appearing on the chart have only a secondary application to the problem of integration. They are included here as a matter of convenience to point out those units to which direct or particularly convenient outside access is most commonly found desirable in connection with the community use of schools.

In closing I want to repeat that the scheme shown here represents no final solution. It is nothing more than a very small contribution to the consideration of a problem that I for one am becoming more and more convinced is a vital one. Our school buildings must be

(Concluded on page 101)

MEETING THE SCHOOL-BUILDING NEEDS OF THE SOCIALLY UNDER-PRIVILEGED AREAS OF A CITY

L. J. Hauser[1]

School buildings should be planned to meet the needs of the particular neighborhood in which they are located. Every large city has its problem areas, which stand out from the rest of the city, because of poor housing conditions, high density of population, inadequate play space, large numbers of families on relief, heavy concentration of social and other contagious diseases, and high rates of juvenile delinquency. Unfortunately the oldest buildings with the poorest adaptations for meeting the needs of the neighborhood are usually found in such areas. This is due to the fact that these areas are the oldest settled sections of the city and school buildings built for previous generations are still kept in operation. What are some of the elementary school building adaptations that are especially needed in such blighted areas?

School Playground

One of the basic needs of the congested problem areas, with their high rates of juvenile delinquency, is an adequate playground. There should be sufficient space for free play activities, playground equipment, baseball, basketball, touch football, volleyball, tennis, and handball. Ample provision should be made for both boys and girls. There should be drinking fountains located in such a way that they are easily accessible to the children. Small plots of grounds for school gardens would also prove very useful. Arrangements should be made for the playground to be flooded in the winter for a skating rink. A small field-house, where the necessary playground equipment can be stored, should be built, so that the playground and equipment can be used after school, evenings, and during vacations, without the necessity of opening the school building itself. The whole playground should be fenced in for the protection of the pupils.

Gymnasium and Auditorium

Gymnasium facilities to meet the special needs of the community should be provided for use during school and out of school hours. Ample provision should be made for both boys and girls. Sufficient showers should be available with special adaptations to meet the needs of the different sexes. The showers should be so located that they will be easily accessible to the outside as well as the gymnasium, so that they can be used for bathing purposes outside of school hours and during the summer. The need for such provision is particularly urgent, because of the lack of bathing facilities in so many of the homes.

An auditorium is not only an essential need for carrying on a well-rounded school program, but can also be used as the center of many community activities. It should be located on the ground floor with direct access to the street. A stage with curtains and dressing facilities must be included, so that plays can be presented by both children and adults. Classrooms, if conveniently located might be used as dressing rooms, and also as cloakrooms for adults. The auditorium should be equipped with a motion-picture booth and projector, as well as a radio with a loud-speaker. Loud-speaker outlets should be made available in the classrooms. Too often this type of equipment must be provided by each local community instead of the board of education, which is a real handicap to the poorer neighborhoods, where the need is so great.

Classrooms and Special Rooms

Since the homes of most of the children in the underprivileged areas are drab and depressing, it is essential that the schools provide a compensating emotional climate through well-lighted, attractive classrooms. They should be decorated with harmonious color schemes, and equipped with plants, curtains, and pictures. The school should be a pleasant, happy place, where the children like to go.

Provision must be made for adaptation to individual differences. The lack of such adaptation has contributed much to truancy and juvenile delinquency. Children who are not academic minded are often given the same curriculum as those who do have special ability in this field. Provision needs to be made for shop, home economics, and other similar activities such as weaving basketry, mechanics, metalwork, mechanical and free-hand drawing, elementary science and gardening.

Industrial and Home Arts

An industrial-arts shop should be available to the school. It should consist of a large workroom with benches, a paint room and a drying room. In addition to their regular work, the children should be encouraged to bring to the shop articles from home that are in need of repair.

Provision should be made for cooking and sewing rooms. A sufficient number of tables, stoves and sewing machines should be available. To insure a well-balanced diet for the many children whose parents are on relief, the school should cooperate with the local relief agencies in helping them provide a hot lunch at school. The lunchroom should be located near the cooking room, where members of the class could prepare the hot lunches as a regular part of their schoolwork. The lunch room should be attractively arranged with small tables and chairs.

Music and Science Rooms

The music room should be located where the sound will least interfere with other school activities. It should be equipped with piano, phonograph, and radio.

Provision for plants and animals may be made in the science room. There should be a demonstration table with water and drainage, gas and electrical connections. Here the interest of the children may be stimulated through the demonstration of actual experiments.

The school library should be arranged in such a manner that it is accessible to the outside as well as the school itself. In this way it will be possible to keep the library open outside of school hours without interfering with the rest of the building. Consideration should be given to the possibility of combining the public and school library, in order to increase the efficiency and adaptability of both libraries.

Kindergarten and Nursery Schoolrooms

Large, attractive, well-lighted rooms are essential for the kindergarten and the nursery school. These rooms should be on the first floor and directly accessible to play space on the outside. Ample toilet facilities should be provided. The need for a nursery school is especially urgent in the problem areas, because of the unusually poor home-neighborhood environments under which these children must grow up, as well as the fact that so many of the mothers are lacking in an intelligent understanding of child training. An adult-education program in child training should be carried on in connection with the nursery school.

Health-Service Rooms

The need for careful diagnosis and effective remedial treatment is emphasized by the heavy concentration of certain types of diseases in the problem areas. The earlier such diseases as tuberculosis and venereal disease are detected, the greater the possibility of providing the cure and the prevention of their spread. Each school building should, therefore, be equipped with a health-service room, where regular physical examinations and the various tests for specific communicable diseases may be administered. Ample space for testing the eyes should be available. A dental chair and efficient methods for sterilizing instruments used should also be provided.

Community Center

The auditorium, gymnasium, library, industrial-arts and home-economics rooms should be planned together as an integrated unit, which is easily accessible to the street, so that the public can make use of these facilities without interfering with the rest of the school plant. There should be constant utilization of this unit in the evening and during vacation periods. It is not sufficient, however, for the school merely to make these facilities available, but it should also accept responsibility for stimulating a greater interest in their use by children, youths, and adults. Provision for motion pictures, dramatics, and social dancing under the sponsorship of the school, would add to the usefulness of the program.

[1]Superintendent of Schools, Riverside, Ill.

William B. Ittner, LL.D., F.A.I.A.

William B. Ittner: His Service to American School Architecture

Marie Anderson Ittner

It was some four decades ago that the American school was first taken out of the hands of the Jerry builder and given a deservedly honored position as an important part of our great American architecture. Much of the initial credit for thus elevating schoolhouse planning, construction, and design to a progressive and living art, belongs to William B. Ittner, a native St. Louisian. During his 38 years of practice in the school-building field, over 500 schools, elementary, high, special, and private, make up the total. With beginnings in St. Louis, Ittner-planned schools spread through the Middle West, into the East, North, and South — into 28 states. But this staggering volume and scope, even though coupled with quality and beauty, do not represent the prime reason for enrolling William B. Ittner's name on the pages of American social history. Volume and quality remain to give emphasis to his influence on the school architectural profession at large. But against the backdrop curtain of Time, is silhouetted in bold relief, a creative and enduring achievement, that becomes more insistent with each passing year. A fundamental change originated and developed by genius and planning skill, therefore takes precedent as the pre-eminent contribution that ushered in a new era in schoolhouse planning and design.

The "Open Plan"

In 1898, when young William B. Ittner was appointed school-building commissioner for St. Louis, he found about the same condition as was general throughout the country. The standard school plan in those days placed a few classrooms around a central inside stairs. Lighting, sanitation, safety, etc., were unheard of subjects. Architecture was a foreign term. It just didn't belong.

With his practical ideals, planning skill, and natural sensitiveness to beauty, Ittner approached his new problem with little to guide him except his own sound analysis, optimism, and confidence. Relegating the existing school plant to history, he evolved a distinctly different type of plan with the developing and expanding educational needs as the dominant consideration. His plan idea was flexible to accommodate readily enrollment and curricular changes; it was "open" to permit maximum light and sanitation; it emphasized safety and gave opportunities for beauty and variety in design.

Thus it was that the "Ittner plan" and the "open plan" became synonymous. Its development revolutionized schoolhouse planning and construction for St. Louis during the two succeeding decades. For the entire country, the revolutionary change carved out an epoch.

Development of "Open Plan"

Use from the very beginning became the measuring rod and criterion of the Ittner plan. Improvements came gradually and naturally in response to increased educational stimuli — the need for playrooms, gymnasiums and workshops, and the broader conception of St. Louis' kindergartens. There were as many variations of the "plan idea" as there were schools. Indeed, in some instances, owing to site restrictions, the plan had to be contracted to the semiopen. The beautiful Bryan-Mullanphy Elementary School and the Soldan High School in St. Louis are examples of such variations.

Travel and research abroad brought several improvements and resulted also in an adaptation of English domestic architecture for many of the schools. The results of special studies on safety, lighting, sanitation, and economy by educational and engineering groups had their reflection in plan development and refinement. The demand for playgrounds resulted in larger sites and improved settings. Schools became outstanding civic assets in their respective communities.

Keynote of Design

Although influenced by the informality, domestic character and subtle charm of the English Renaissance, there is no slavish adherence to any architectural tradition in Ittner-planned schools. The frank and natural development of the elevations furnished the vital spark. Analysis reveals the nobility of mass relationship, of proportion and composition. Classic details there are, but handled with a new freedom.

Brick was always Mr. Ittner's favorite building medium. Size of unit, texture, and color he gave as reasons — a medium most easily handled for the flexible "open plan." Then, too, the informal exterior called for an informal medium. He always insisted that brick walls aged and weathered beautifully — if colors were skillfully blended — and gave as examples, the old manor houses of England, Knoll House, Eton College, and Hampton Court Palace, that had become symphonies in color, in the course of centuries.

Architect Guy Study, St. Louis, in his article on the "Work of William B. Ittner" in the *Architectural Record*, February, 1925, has given a scholarly presentation of Mr. Ittner's achievements in brick, as per the following excerpts:

> We find a truly revolutionary use of brick. The son of a brick manufacturer, it was perhaps only natural that he should discover in the use of brick his most friendly material and most convenient medium. . . . Ever seeking for new effects in the blending of colors, Mr. Ittner has

The Meramec School at St. Louis from a photograph taken at the time of its completion. The building has worn exceedingly well and is as attractive today as when it was erected more than twenty-five years ago.

Mr. Ittner was particularly happy in simplifying and adapting to American school buildings the architectural precedents set by the designers of the great English manorial houses. The above illustration of the Emerson School, Gary, Indiana, was made from a photograph taken immediately after the completion of the structure when the surrounding site was still a sand dune.

obtained a greater variety and elegance of texture in his brick walls than perhaps any living architect. . . . Always using the material at hand, demanding no extraordinary fine quality, yet with almost uncanny intuition and with the art of a conjurer, he is able to produce an effect that is lively and rich in color, soft in texture and sparkling with life.

Mr. Study's description of the brickwork in the Clark Elementary School in St. Louis becomes more specific: "In the mellow sunlight of a late afternoon, when the shadows are lengthened, one should study this building; then the walls take on a tone rarely met with in modern work. The blending of soft reds and dull pinks relieved by the indistinct criss-cross patterns has given these walls a novel richness."

Bedford stone was used as a medium when sufficient reasons demanded, as for instance, the Central Technical High at Columbus, Ohio, where the building was to furnish the key design for a group of civic-center units. And in the South, with its difference in climatic conditions and traditions — stucco, enlivened by limited use of color, often took the place of this otherwise favored medium.

The Call to Gary, Indiana

Shortly after the dawn of the present century, William Wirt was elected superintendent of schools of the new steel town of Gary, Ind. By strange coincidence, the early careers of William Wirt and William Ittner are similar. While William Ittner was initiating and developing the "open plan" in St. Louis, William Wirt was accomplishing the unusual in education. As Ittner visualized a new school for St. Louis and the country, so Wirt visualized education as a comprehensive social problem with the school plant as the community's social center, serving all of the children and all of the people for study, recreation, and work. He visualized enlarged and complete school centers on large sites, rather than segregation into elementary, junior, and senior schools. Playgrounds, gymnasiums, shops, branch libraries, and auditoriums were required for the daily activities of William Wirt's idea of a school. This visualization of the American school to meet the social and educational demands of the day, Dr. Wirt shared with all other far-sighted school superintendents. His real problem, however, consisted in bringing this new school into realization within taxable income. By an administrative device of his own creation, whereby all parts of the school plant and grounds could serve full time, he could cut classroom space in half. Much of the space ordinarily devoted to classrooms, could, with his schedule, be given for gymnasiums, shops, and auditoriums.

Ever alert for progress, Dr. Wirt had watched William Ittner initiate and develop the "open plan" in St. Louis. He called upon Ittner to plan Gary's first work-study-play school — the Emerson School — planned for 1800 pupils from kindergarten through high school — located on an eight-acre site — large for that time.

In Gary, the Ittner measuring rod and criterion of *use* was given a more severe test than in St. Louis. His problem in Gary was not only one of providing safe and healthful classrooms, workshops, auditoriums, and gymnasiums, but these had to be of certain size and character. Furthermore, the educational units had to be located and oriented so that the plan of rotation of classes (Dr. Wirt's administrative device), could go on conveniently and expeditiously.

Calls to Other Cities

An era of beautiful and monumental high schools had its beginning about 1915. The first Ittner high school outside of St. Louis, was at Richmond, Ind. Then followed calls

(Concluded on page 101)

The Central Technical High School at Columbus, Ohio, makes effective use of a classical style so that it harmonizes fully with the group of state governmental buildings of which it is a part.

Minimum Requirements for a Health Room in a Small School

Carl A. Roos[1]

There is no simple or single answer to the question of what constitutes a good health room for school purposes. Health programs vary to such an extent that it is impossible to make a general statement that can be applied to all situations or to set up a standard health unit that may be applied to any given situation without alteration. However, there are underlying factors that determine the need and the functional possibilities of the health room, or health unit, and its equipment, and these should be given careful consideration when planning a health room or health unit.

The purpose of the school health unit is to serve a definite need in the school program. That need should be to facilitate carrying out a well-planned and well-constructed health program. Every factor involved in planning, constructing, and furnishing the school health unit must be weighed carefully against its purpose or function in terms of the school health program. If the school does not have a health program, or if the existing program needs revision, this work should be done before planning the health-room facilities.

Location of Unit

Location is a very important factor. To function properly the health unit must be so located and oriented that it becomes properly integrated with other units of the school organization and serves the need of those who are to administer the health program and those who are to benefit from it.

The health unit must have good supervision. Pupils removed from classes because of illness, accident, or other health reasons will be kept in the health room while proper arrangements are made either for their return to classes, or their removal to the home, or hospital. Such cases must never be left without the supervision of a responsible member of the staff. Most small schools do not have a full-time nurse or health secretary. It is then necessary that the health unit be close to the principal's office where the room and its pupil occupants are under the supervision of the principal or the office secretary during the nurse's absence.

Quiet is essential for every health unit. The mental hygiene of the health examination, to say nothing of stethoscope and hearing tests require that the room be quiet. Many factors complicate the problem of securing quiet, such as pupil traffic in the halls, the shops, gymnasiums, and other noise producing activities. The problem may be further complicated by outside influences such as heavy-traffic streets, railroads, or factories. To overcome noise, double doors and acoustical building materials may be utilized. If possible, rooms used by the physician for examinations and hearing tests, should be treated with acoustical wall and ceiling material.

[1]Elementary School Principal, Metuchen, N. J.

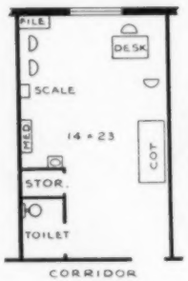


Fig. 1.

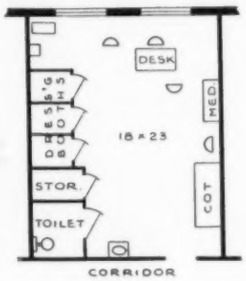


Fig. 3.

The health record is an essential part of the pupil's complete record usually kept in the school office. The convenience of quick access to records for both departments requires that they be in close proximity.

The health unit should be so located that it is convenient to all parts of the school, as well as to parents and the public, and so that ill or injured pupils may be easily and inconspicuously removed by car or ambulance. In the event the nurse visits more than one school, it should be convenient to the street or driveway, to conserve her time as well as that of the physician and dentist. Parking space convenient to the school entrance near the health unit should be provided for the health personnel, to conserve their time and to make the cars available in case of emergency.

In general, the health unit should be so located that it is under full supervision at all times, on a quiet hall. A basement room is undesirable. A first-floor location is usually most satisfactory.

Finish and Sanitation

Absolute cleanliness is necessary in the health unit. The floors should be easy to clean and kept free from dust. Heavy linoleum has proved to be satisfactory. It is easy to clean, deadens noise, and is economical. Other materials are satisfactory but linoleum is especially desirable in remodeled rooms. The corners and the union of baseboards and floors should be rounded to facilitate cleaning.

Toilet bowls and urinals should be of vitreous china and connected with brass piping. The wall-hung type is preferred. Seat-operating flushing is recommended for toilet bowls; foot or knee operating is recommended for lavatory bowls and urinals. The floor of the toilet room should be of tile set in nonabsorbent material. Special attention should be given to assure adequate light and heat for the entire unit.

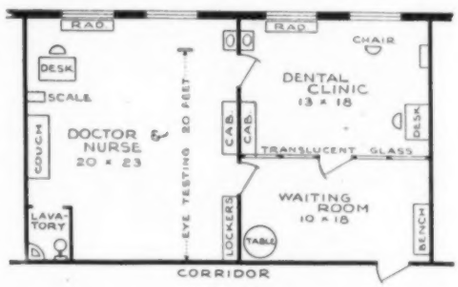


Fig. 2.

Psychology and Mental Hygiene

The health unit should be planned to create a pleasing impression on personnel, pupils, and visitors. The room should not appear as a hospital but should be cheerful, designed to inspire a restful attitude and confidence in the health program and personnel. Parents and children will not have confidence where health work is done in a cheerless, unkempt room. The favorable feeling inspired while visiting an agreeable health room will carry over to other school activities, and the effect created is probably important to the entire school. For this reason if for no other, the combination teacher-health room often found in the small school should not be tolerated. Teachers are entitled to privacy when resting; and the work of the physician and nurse demand the privacy of a room set aside for their work, free from disturbances and interruptions.

Storage space should not be overlooked. Medicines and instruments should be kept in neat medical cabinets. Attractive and serviceable metal-glass cabinets are manufactured for this purpose at reasonable cost, in sizes ranging from small cases for small schools, up to any size needed. Unpacked materials, bedding, and other accessory materials should be stored in a clean closet.

All furniture of the unit should be selected with care and with the purpose to be served definitely in view. The health room is no place for repaired furniture from other departments. Every item that does not serve the health program should be removed.

The Problem of Area

The small school does not need a large room or an extensive suite. However, there are minimums beyond which efficient work cannot be done. Eye testing with the Snellen chart requires one dimension of 21 ft. Additional space for the pupil will require at least 1 ft. making a minimum of 22 ft.; 23 to 25 ft. would be much better. Adequate light must be provided. An electrically lighted chart is to be preferred. Provision should be made for adequate artificial as well as natural light.

One dimension should be 21 to 25 ft. The very simplest health room worthy of the name must house at least a medicine cabinet, a large scale, a file cabinet, a desk, four chairs, and at least one cot. During health examinations there will be at least three persons in the room, the child, the nurse, and the physician, and provision must be made for the parent. To accommodate these persons and room paraphernalia the other dimension must be not less than 14 ft. Hence we might say that the minimum dimensions for any health room is 14 by 23 ft. This will accommodate a simple health program in a small elementary school of three to ten classes. More space will be needed to care for a larger school or for a more complete program.

(Concluded on page 101)

Entrance Elevation, Northampton Senior High School, Northampton, Massachusetts.—J. Williams Beal, Sons, Architects, Boston, Massachusetts.

Built for Pupil, Teacher, and Citizen

William R. Barry[1]

Ten years ago, Northampton, like so many other American communities, found its senior high school greatly overcrowded. Soon it became necessary to hold two sessions daily—a morning session for seniors and juniors, and an afternoon session for sophomores and such freshmen as had entered Northampton schools from eight-year systems elsewhere. In the absence of a cafeteria, this arrangement necessitated the shortest school day of any city high school in the Commonwealth of Massachusetts. In addition, it was necessary that pupils spend their study periods at the rear of classrooms where recitations were being held; yet the demands on the school in terms of numbers preparing for college entrance were far greater than is usually true of public high schools. The assembly hall accommodated 375, and consequently it was not possible for the student body to be assembled at one time. While this is to be expected in schools enrolling from 2000 to 5000 pupils—a three-year high school with fewer than 850 pupils, such as Northampton's, can ill afford to make this sacrifice. No facilities were available for physical education, and while the splendid public library but a few rods away was accessible to the pupils during study periods, the school had no adequate library of its own. A splendid trade school is accessible to Northampton pupils, and therefore shop and domestic-science courses were not considered necessary in the public high school where the majority of pupils annually are enrolled in the college-preparatory curriculum. In college-preparatory work, high standards have always been successfully maintained, but even in this accomplishment, obsolete and limited science laboratories and equipment were a distinct handicap. The relatively small number of pupils in the commercial department were obliged to forego many of the advantages available in a modern high school building.

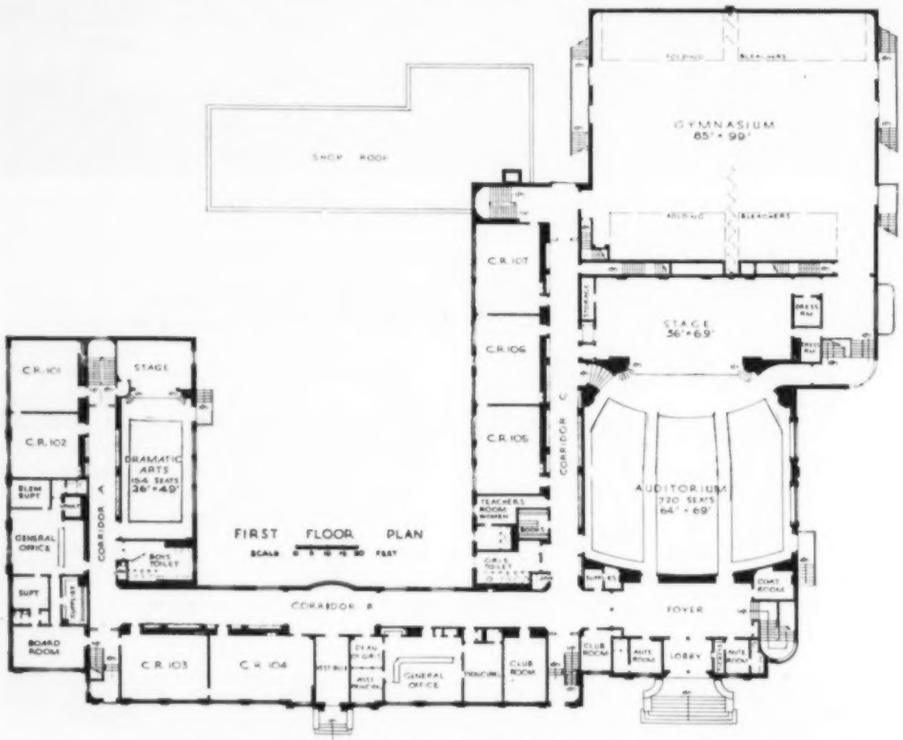
In 1931 a special committee, appointed by the mayor, consisting of members of the city council and the school committee, found the senior high school overcrowded, and suggested that it would be necessary to erect a new high school building within a few years. Because of economic conditions at the time the committee recommended postponing such an undertaking.

A second committee, appointed in January, 1934, studied the situation for a year and a half, recommending in August, 1935, that a new high school building accommodating 1000

The library of the Northampton Senior High School has been designed and furnished to provide a quiet atmosphere for study.

[1]Superintendent of Schools, Northampton, Mass.

The west elevation of the Northampton Senior High School showing the auditorium and gymnasium wing.



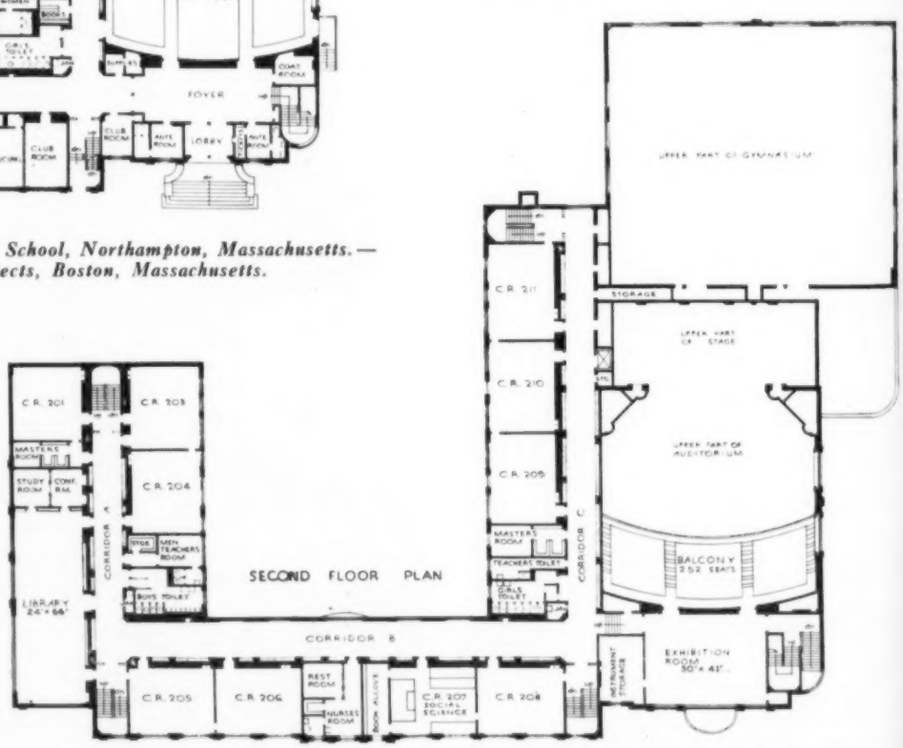
First Floor Plan, Northampton Senior High School, Northampton, Massachusetts.— J. Williams Beal, Sons, Architects, Boston, Massachusetts.

pupils be erected at a cost of $550,000. The group estimated the additional expense of maintaining the building to be approximately $12,000 per year. No action resulted, however.

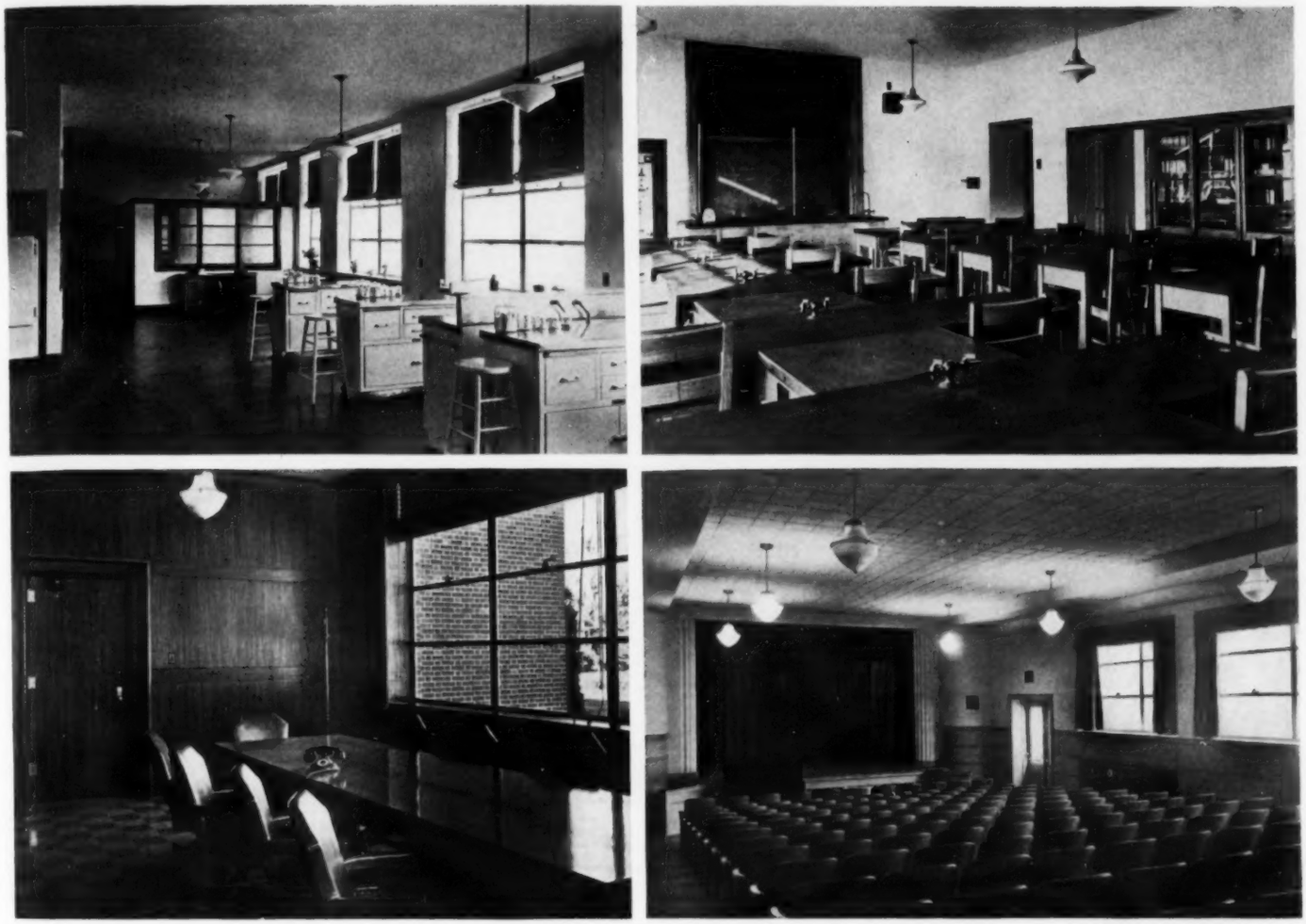
In January, 1937, a third committee was appointed, but after two meetings concluded that public sentiment not only was not strongly in favor but definitely preferred a joint police and fire station. At once the contest began. One or the other must wait. Along Main Street the much needed combination police and fire station had a definite lead, but there existed throughout the community a temporarily dormant but potential number of supporters of the high school who needed but to be aroused. Various meetings were arranged. The service clubs, church clubs, parent-teacher organizations, and others were addressed on the need of a new high school building, and a sympathetic press greatly helped in solidifying public opinion.

In January, 1938, a fourth committee, with public sentiment more strongly organized in favor of a new high school than at any previous time, found that a new senior high school building was "sorely needed" and recommended its erection at once.

A mayor, sympathetic to the project, made it a possibility, but at meetings of the city government in August and September, 1938, the fate of a new building hung in the balance and the school department was obliged to overcome active city hall lobbying and acrimonious debate by opponents of a new building, as well as to adjust last minute differences between city officials who were favorable to the proposal itself but who did not see eye to eye as to the personnel of the future building committee, the proposed cost of the project, and a few other similar considerations.



Second Floor Plan, Northampton Senior High School, Northampton, Massachusetts.



Upper left: the cooking room of the domestic arts department is planned on the unit basis, each unit reflecting typical home kitchen conditions. Upper right: the physics laboratory is equipped with Lincoln-type desks. Lower left: the school committee's room is finished in keeping with the dignity of the body which meets here. Lower right: the dramatic arts room is a little theatre ideal in stage equipment, lighting, acoustical treatment.

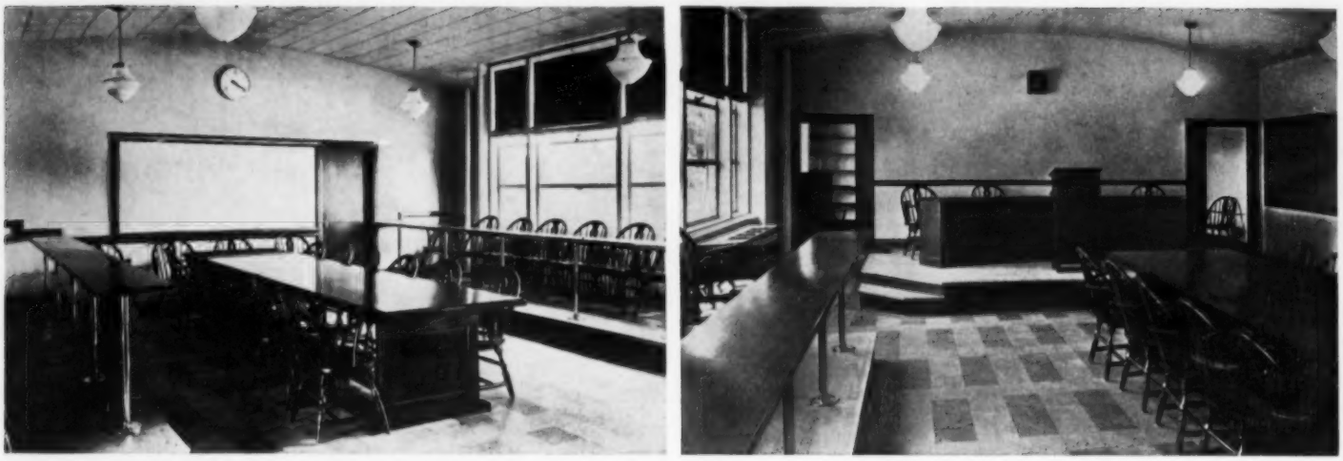
The date, September 15, 1938, will be a memorable one in the annals of the Northampton public schools. On that date the city voted to accept the federal grant for a new senior high school building, and to issue bonds payable in 20 years at 1.75 per cent interest for the city's share. The total cost of the project, including the purchase of site, demolition of buildings, architects' and engineers' fees, the construction of the building and the finished grading was $797,160. The cost of the building itself was 32 cents per cubic foot.

The committee appointed to carry through the project visited some of the outstanding high school buildings in the state, and in addition the school officials visited some of the most recently constructed high schools in neighboring states.

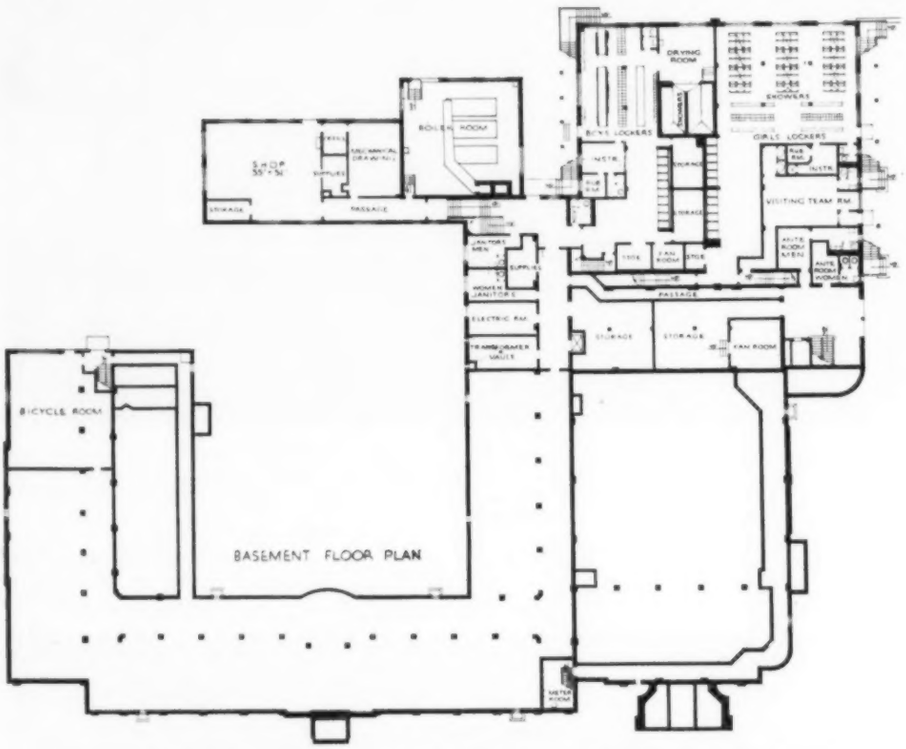
The school department was most fortunate in having architects selected who desired a maximum of activity on the part of the school administration in the planning of rooms and equipment. In turn, the school administration requested suggestions from the entire teaching force of the senior high school, and the superintendent and principal had numerous conferences with the superintendent of buildings, department heads, and special teachers. In so far as seemed practicable the suggestions and recommendations of the various teachers were incorporated in the plans and specifications.

The building, the exterior of which is moderately modernistic in design, is U shaped and three stories high. It is constructed of wire-cut brick with limestone trim. It faces east, thus allowing a maximum of light for a majority of its classrooms. Except for

The auditorium of the Northampton Senior High School provides an ideal small theatre and music hall.



Views of the unique social science rooms showing at the left the ordinary seating of the class and at the right the raised stage for the participants in panel and group discussions.



Basement Floor Plan, Northampton Senior High School, Northampton, Massachusetts. — J. Williams Beal, Sons, Architects, Boston, Massachusetts.

supporting columns, the entire side of each and every classroom is a wall of glass, consisting of long, horizontal mullion windows.

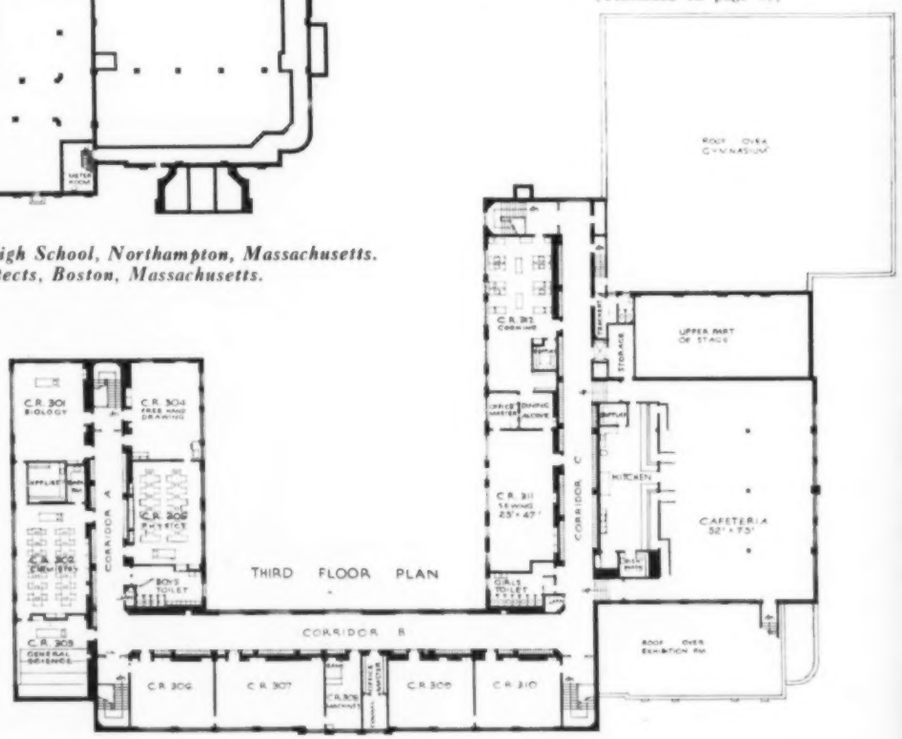
While one thousand full-sized lockers have been installed along the corridors of the school, the building may be said to conveniently accommodate 950 pupils. This is only 100 over the present number, but a decidedly decreased enrollment in the elementary grades did not seem to justify immediate plans for a larger building. If there should be an unexpected growth in either the school enrollment or the city's total population in the years to come — six classrooms can easily be added at the rear of the southern wing of the building without changing the school's general appearance.

The auditorium is a separate unit and seats 994 persons. It has a stage 70 ft. in width, 33 ft. in depth, with a proscenium arch 40 ft. wide. The stage lighting and equipment compare favorably with those of the best modern commercial theaters. It is the policy of the Northampton School Department to permit the widest possible use of the auditorium and the little theater as well, when it can be arranged to avoid interference with regular school activities.

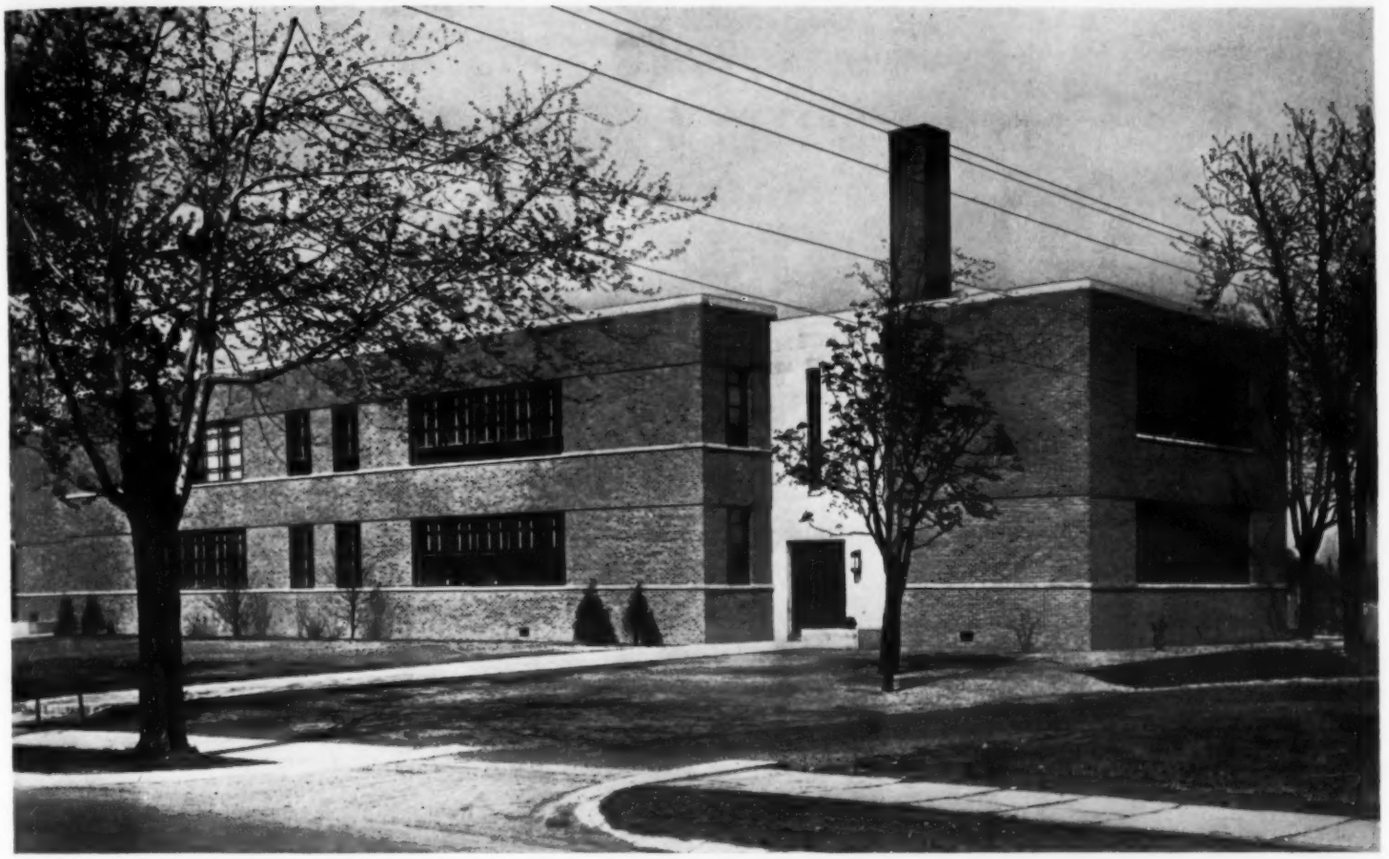
The gymnasium with a sound-absorbing ceiling provides a floor space 100 by 85 ft., which can be divided by folding doors 24 ft. in height. For basketball games, there is a public entrance and exit. Telescopic bleachers accommodating 1400 have been installed along the sides of the gymnasium. If needed a few times each year, additional temporary bleachers accommodating 600 can be used at the gymnasium ends.

One of the numerous features of the building is to be found in the modern shower room facilities — arranged in three units —

(Continued on page 95)



Third Floor Plan, Northampton Senior High School, Northampton, Massachusetts.



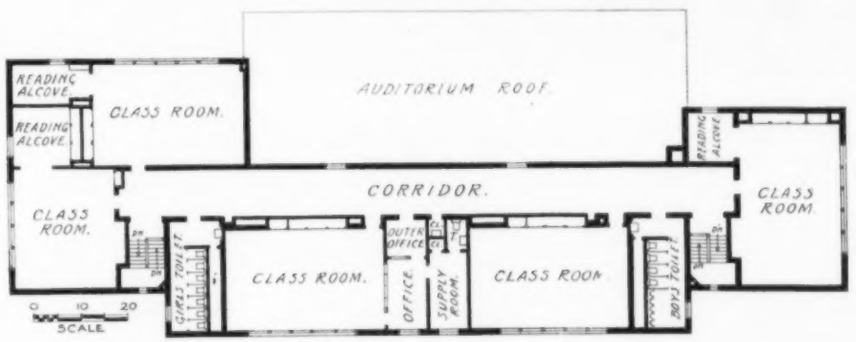
The East School, Galion, Ohio.— Moore and Denman, Architects, Marion, Ohio. Adequate playgrounds are to the rear of the building.

The East Elementary School Galion, Ohio

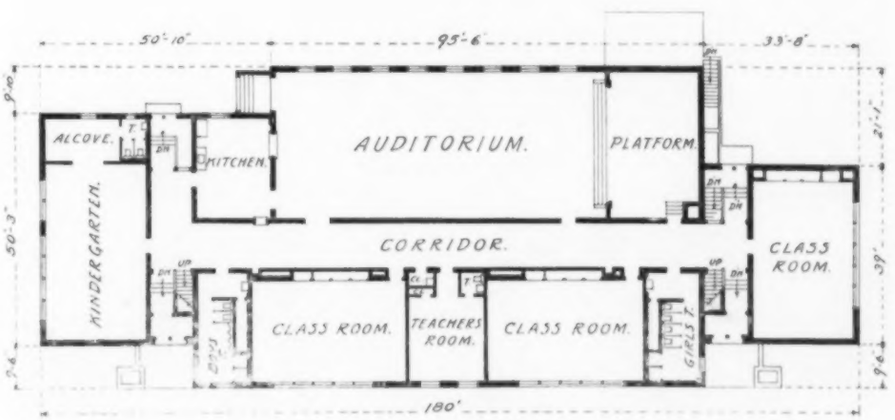
To make clear to the reader the educational problem solved by the erection of the East Elementary School at Galion, Ohio, it is perhaps necessary to state that the city is located on the main lines of two great trunk railroads and has 15 major industries which furnish employment to the adult population. The community is a sound, forward-looking American city which enjoys the services of a school administrative staff and a board of education seriously concerned in the educational and social welfare of the entire population.

During the school years 1936–37 and 1937–38 the Galion board of education was confronted with a critical problem of safe and healthful housing of the school children in the east section of the city. Not only was the housing a problem but a definite need existed for facilities which would furnish a community center for that part of the city. The old building, erected in 1880, was obsolete and beyond repair and was incapable of meeting the school needs. It lacked fireproof features and its continued use contributed a definite fire hazard.

Following an extensive survey by a special committee of the board, it was decided that a new elementary school for this section would contribute to the development of the local school problem and would meet a community



Second Floor Plan, East School, Galion, Ohio.— Moore and Denman, Architects, Marion, Ohio.



First Floor Plan, East School, Galion, Ohio.— Moore and Denman, Architects, Marion, Ohio.

Top left: an assembly in progress. The principal is directing the discussions which the children at the left are carrying on. Top right: the classrooms are all equipped with movable furniture to permit of the greatest freedom for teachers and pupils. Lower left: an upper grade illustrating the movable furniture and the semi-direct lighting. Lower right: the automatic hot air heating system is fully equipped with a humidifying unit.

The WPA nursery school in session. Heat and ventilation in this room is provided through the anemostat in the ceiling.

need. In August, 1938, a publicity committee, comprising representatives of the school board, the parent-teacher association, and other local groups prepared and distributed publicity literature to the local school patrons, explaining the need of the building and means for its financing. In addition, letters were sent to all local residents, giving a clear picture of the school needs and what the board proposed to do about it. These letters contained information about the proposed bond issue for the East school building and the funds at the disposal of the school system to finance its construction and equipment.

The administrative staff of the schools, under the direction of Mr. O. E. Hill, superintendent of schools, made a careful study of the educational, social, and community needs and the kind of a building which would best serve the instructional and civic program. The firm of Moore & Denman, Marion, Ohio, selected as architects for the structure, prepared sketches involving the space requirements set up by the administrative staff.

After the passage of the special bond issue of $54,000 in November, 1938, plans for the building were approved by the board of education and the PWA administration. Contracts for the building were let to the L. N.

Leonard Construction Company, of Columbus, construction work was started in October, 1938, and the building was completed and dedicated on January 4, 1940.

The East Elementary School is a modern building planned for an educational program to meet definite educational needs. There are a nursery, a kindergarten, a library, an auditorium-gymnasium, a teachers' rest room, a kitchen, an office and workroom, and boys' and girls' toilets.

The basement provides space only for the hot-air heating plant and the humidifier. On the first floor are located the auditorium, two classrooms, and a kindergarten. On the second floor are five classrooms and a reading alcove.

The auditorium-gymnasium, which is planned to seat 350 persons contains a stage extending the full width of the stage front, with steps leading from the auditorium level to the stage. A purple velour stage curtain and gold-trimmed valance are provided. The cyclorama of repp cloth is in two sections, on a circular track to clear the stage. Spotlights and dimmers facilitate proper lighting for all dramatic activities. There is a small kitchen adjoining, which is connected by a serving window, and folding tables are provided for banquet meetings. The kitchen is equipped with electric refrigeration, cupboard space, banquet-table storage, gas stove, sinks, and table service. A teachers' rest room, completely equipped by the parent-teachers association, provides comfortable quarters for the teaching staff of the school. Maple furnishings blend well with the floor and walls, and appropriate drapes have been placed at the windows.

Each classroom is equipped with standard green boards, a unit wardrobe, anemostate equalized heating, radio reception, bulletin boards, venetian blinds, sufficient semi-indirect lighting, movable furniture, and beautiful asphalt-tile floors. The kindergarten and grades one through three, have movable chairs and tables; combination chair and desk units were supplied to grades four through six. Fifty per cent of the classrooms have well-lighted alcoves to be used as a classroom library and workshop.

The kindergarten room is completely equipped in every respect to meet the needs of the preschool child. Ample floor space provides an opportunity for varied children's activities. Exclusive toilet facilities for the small child help to develop the ability of self help and independence.

The building is heated by an automatic hot-air system with a modern humidifier. A semi-indirect lighting system has been installed. The toilets for boys and girls are on each floor, at opposite ends of the corridors, to insure as little corridor traffic as possible.

A sound system has been installed to facilitate radio broadcasting and to assist in the promotion of school activity programs.

The building was completed at a total cost of $98,182, of which the city provided $54,000 in the form of a special bond issue, and the PWA furnished a grant of $44,182, or 45 per cent of the cost.

The Galion board of education, the members of which directed the planning and construction of the East School. Left to right: Miss Louise John, vice-president; Dr. B. P. Mansfield; Dr. P. A. Murr, president; H. W. Sanderlin, clerk; Dr. Clarence Adams.

EAST SCHOOL, GALION, OHIO

Construction and Details

Exterior, Face brick and sandstone.
Dampproofing compounds, *L. Sonneborn Sons, Inc.*
Windows, steel sash, *Truscon.*
Insulation, ceilings and roof, *Celotex.*
Floors: corridor and stair treads, concrete and alundum; classroom, asphalt; auditorium, concrete and mastic tile; toilet rooms, concrete.
Acoustical materials, auditorium and corridor ceilings, acoustical plaster.
Temperature control, *Powers Regulator Company.*
Lighting, Semi-indirect, *"Astion"* globe, *Corning Glass Works.*
Program clocks, *International.*
Radio and broadcasting system, *RCA Mfg. Co., Inc.*
Flush valves, *Sloan.*
Blackboards, *Weber Costello Company.*
Pupils' desks, movable, *Beckley-Cardy.*
Auditorium seating, *American.*
Stage scenery, *Universal Scenic Studios.*
Motion-picture machine, *Bell and Howell.*

The central library provides reading and study materials for the entire school. In order to develop good library habits pupils are instructed in the finding and use of books.

Main Front, Newark High School, Newark, New York. — Carl C. Ade, Architect, Rochester, New York.

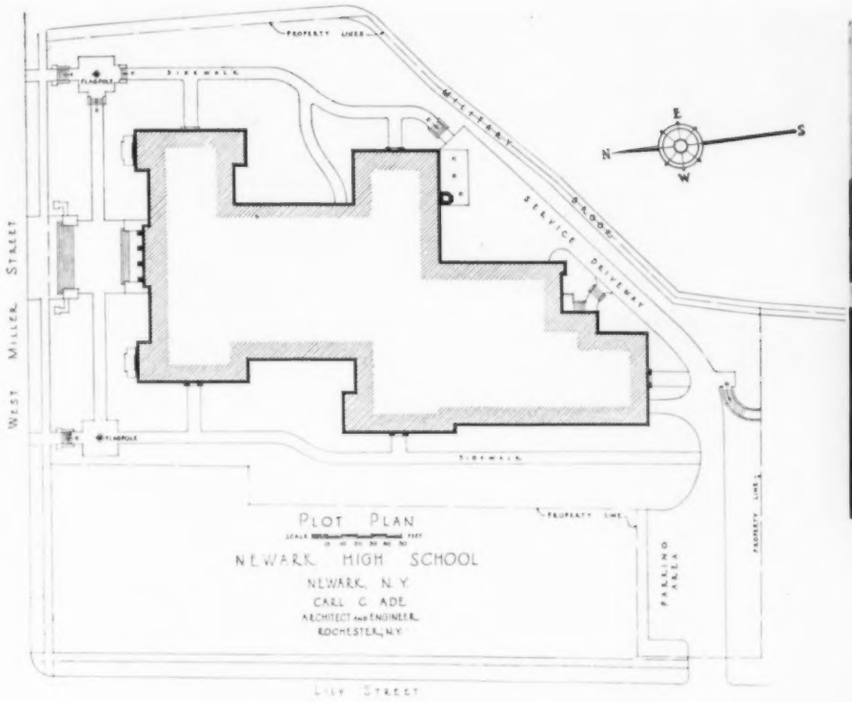
Junior-Senior High School Completes Six-Six Plan for Newark, New York

The village of Newark, situated in Wayne County, New York State, has a population of approximately 9000 people. It is quite widely known as the "flower city" due to the fact that it is located in one of the most important nursery centers of the country.

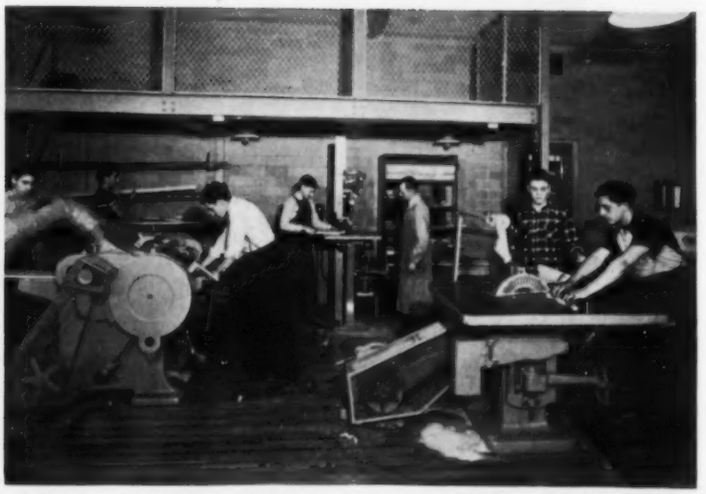
The administrators of the school system used good judgment in planning to give Newark excellent grade school facilities before building a junior-senior high school. Consequently, the three grade buildings, situated in the north, east, and south-west sections of the town, are fully equipped and have ample playground space.

For a number of years, the townspeople had accepted the fact that a new junior-senior high school was badly needed. The old building was 50 years old and was completely worn out. In the spring of 1938 it was decided to begin work on this project which was the fourth step in the completion of the building program. Naturally, the board of education turned to the man who had been the architect throughout the previous building programs, Carl C. Ade, Rochester, N. Y. Mr. Ade de-

The cafeteria serves the triple purposes of a study room and a speech arts department.



The homemaking department is planned and equipped to provide practice work under conditions found in the average home.



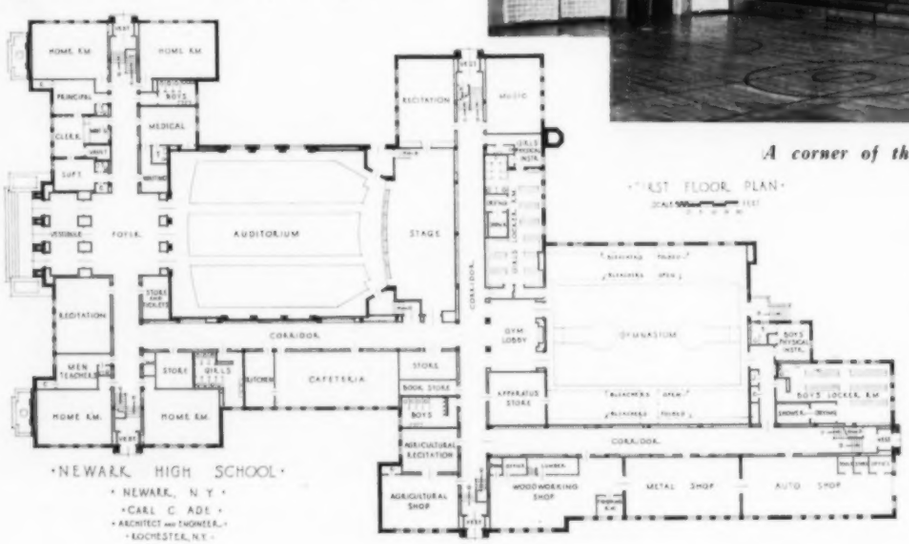
Upper left: the foyer is dignified but attractive to young people. Upper right: the machinery corner of the woodworking shop. Lower left: a corner of the agricultural shop. Lower right: the science department.

Modern design and a homelike atmosphere characterizes the auditorium so that student actors may get their plays across to the student audience.

signed and built the Charles H. Perkins School and completely remodeled the Lincoln and Roosevelt grammar schools.

Mr. Ade immediately decided that, if the board of education worked fast, possibly a PWA grant could be obtained. The application was filed in May, 1938, and was approved almost immediately. The board of education appointed a citizen committee to work with them; a site was selected which was comparatively central, with a large public park in the rear for playground and athletic facilities; an election was held on August 9, and the citizens of the community voted the proposition that a new six-year high school

A corner of the attractively finished gymnasium.



be erected on the site selected by the board of education and citizens committee at a cost of $650,000; of this amount 45 per cent or $292,500 would be paid by the Federal Government. Ground was broken in October, 1938, and the building was finally completed in June, 1940.

The layout of this building and the physical equipment was molded about the philosophy of the school. E. R. Woelfel, superintendent of schools, and Arthur E. Nash, principal, expressed this philosophy in the following words:

The school of today must meet the demand not only of a rigid educational requirement but

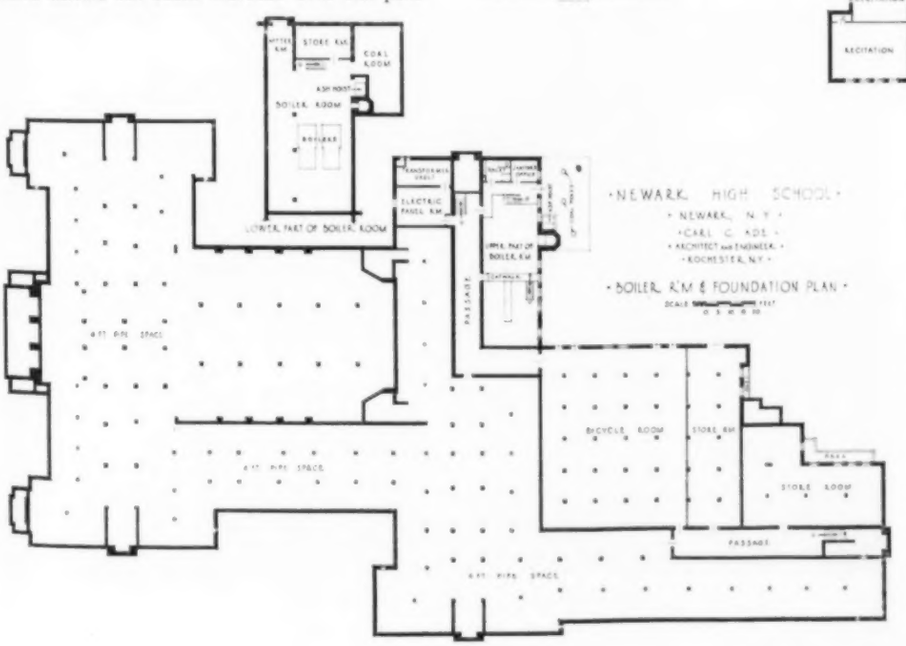
Beautifully finished and furnished is the library with its walls of curly birch and its especially designed clock, lighting fixtures, and library furniture.

also of our entire social order. A few years ago the secondary school catered to the students who were to attend college. Today only a small percentage of our students continue their formal education beyond the high school. Therefore, it has become our task to provide training for the great bulk of our student population who must immediately assume the responsibility of earning their livelihood. It became imperative that our school adopt a broader curriculum to meet these individual interests, aptitudes, and needs. To attain this end, we have included in our educational program all the departments which can be handled efficiently in a secondary school of our enrollment.

Bearing out this philosophy, provision was made in the new building for the following departments: College Entrance, Agriculture, Commercial, Homemaking, and Industrial Arts. The building accommodates 800 students, which allows for some increase over the present enrollment of approximately 700. It includes an auditorium, double gymnasium, girls' and boys' locker and shower rooms, apparatus room, general shop, woodworking shop, automechanics shop, music room, agriculture recitation and shop, cafeteria and kitchen, men and women teachers' rooms, health clinic, homemaking department, elementary and advanced science laboratories, library with conference and workroom, art room, administrative offices, commercial rooms, and regular recitation classrooms.

Construction and Equipment

Exterior, Face brick and cut stone.
Windows, *Metal-Fenestra, Detroit Steel Products Co.*
Floors: Classroom, Linoleum, *Congoleum Nairn, Inc.*; Auditorium, Concrete, carpeted aisles; Gymnasium, end grain, strip beech (South); Corridor, toilet rooms, locker and shower rooms, Terrazzo.
Acoustical Material, plaster and Acoustone, *U. S. Gypsum Company.*
Boilers, Firebox type, *Fitzgibbons.*
Temperature Control, *Johnson.*
Heat Control, *Warren-Webster.*
Radiation, Convection, *Warren-Webster.*
Program Clocks, *International.*
Radio and Public-address System, *RCA Mfg. Co., Inc.*
Drinking Fountains, *Halsey W. Taylor.*
Blackboards and Bulletin Boards, Natural slate and cork.
Lockers, *Medart.*
Waste Receptacles, Movable, *Solar-Sturges.*
Gymnasium equipment, *Medart.*
Office furniture, teachers' desks, pupils' desks, tablet-arm chairs, auditorium seating, *American Seating Company.*
Laboratory and vocational furniture, Hamilton Mfg. Company.
Shop equipment — machine tools, *Yates American, South Bend Lathe, Walker-Turner.*



NEW HEALTH PROJECTS OF THE NYA

New state-wide health projects for NYA workers have been placed in operation in the 48 states, the District of Columbia, Alaska, Porto Rico, and the Virgin Islands, as part of the National Youth Administration's $2,500,000 program. By February 1, it is expected that considerable progress will have been made in connection with the health of 100,000 young people.

One of the major contributions which the NYA will make in the present emergency is to promote the highest standards of health and physical fitness of persons employed on the NYA out-of-school work program through full utilization of resources of the Federal Government and the local communities.

Efforts toward accomplishing this purpose are being carried out along three directions: (1) by means of a physical appraisal which provides for health examinations of all youth assigned to the out-of-school work program; (2) the correction of health defects through maximum utilization of community resources; and (3) through the use of improved technical advice and assistance with respect to all NYA efforts.

The main front of the Harrison Junior-Senior High School, Harrison, New York, is marked by extreme simplicity.— Robert P. Vignola, Architect, Harrison, New York.

Harrison's New Five-Year High School

Robert P. Vignola, Architect and Louis M. Klein, Superintendent

The board of education of Union Free School, District No. 6, Harrison, N. Y., in 1935 was faced with the necessity of providing additional facilities for its rapidly increasing secondary school enrollment which had grown from 116 in 1925 to 350 in 1935.

In 1935, the board applied to the Federal Government for a PWA grant of 45 per cent of the cost of erecting a new high school building. This grant was approved in June, 1938, and construction of the new school began in August. The bond interest rate was 2½ per cent, and the total cost of the building which was completed in June, 1940, and which will house grades eight through twelve, was $762,881.03.

In planning and designing the new high school, the primary aim was to construct a building which would contribute toward the educational processes by assisting in the development of pupils into capable individuals and useful and well-integrated members of society.

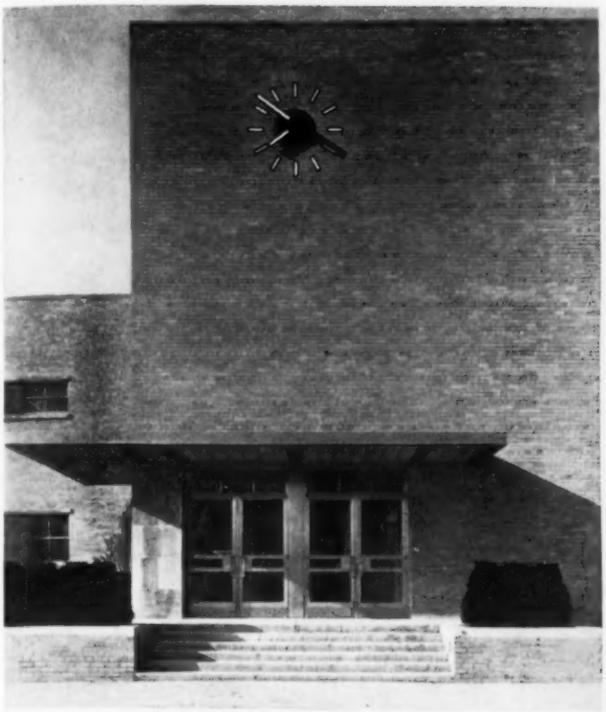
The building is of modern design and was planned to house the present and future educational needs of the school district. Particular attention was given to the selection of materials which are known to the building industry to give maximum use and life, thereby reducing the cost of maintenance to a minimum. The building is equipped with every known modern method for its functional and educational use.

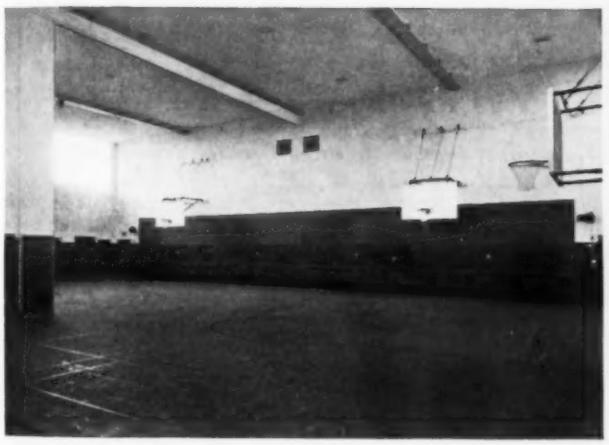
The building has 675 pupil stations and contains approximately 1,500,000 cubic feet of space. Provisions have been made so that additions to the structure can be developed for future growth.

The structure contains an auditorium having a seating capacity of 816, which allows for future expansion, and it is equipped with a public-address system controlled from the principal's office in the administration suite. The room is acoustically designed and treated to minimize distortion of sound, contains public toilets, and its location is such that it may be separated from other portions of the building by a folding grille, when used for civic and public purposes. All the aisles of the auditorium are covered with rubber tile. The orchestra and band pit accommodates 65 pupils. All windows in this room are of aluminum.

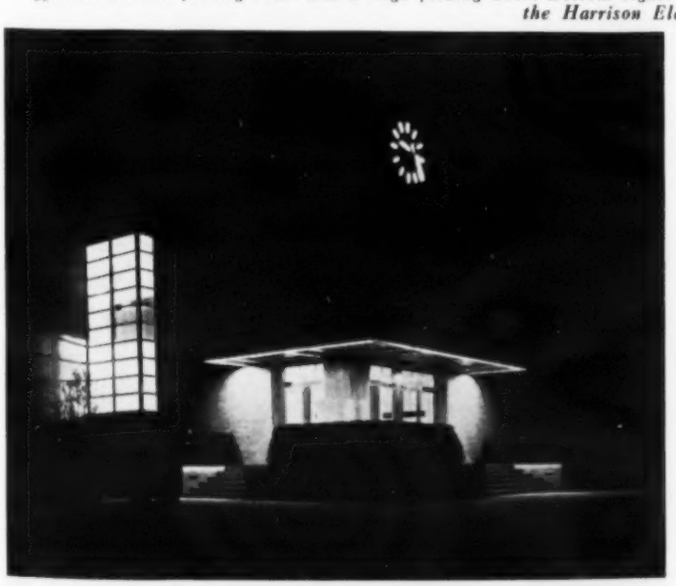
The administration suite consists of a main business office located in the northeast corner of the first floor. This office has been designed to accommodate the necessary equipment for the secretary to the principal, secretary to the superintendent, and a switchboard for the entire school system. The intramural communication system is controlled from this office, as is the clock mechanism which con-

Both in color and form the auditorium is attractive and suitable for adult as well as pupils' use.

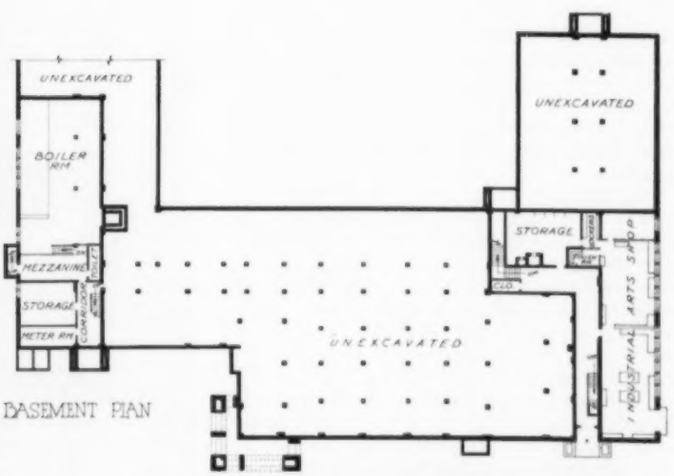




Top left: the main entrance with the clock above. Top right: the general office is equipped with fireproof cabinets. Bottom left: the gymnasium has folding seats and a huge folding door. Bottom right: the typical classroom looking across the athletic grounds toward the Harrison Elementary School.



The entrance is attractively lighted for the night use of the building.



Harrison Junior-Senior High School, Harrison, New York.— Robert P. Vignola, Architect, Harrison, New York.

Floor Plans, Harrison Junior-Senior High School, Harrison, New York.—Robert P. Vignola, Architect, Harrison, New York.

trols the bells. The business office is supplemented by three connecting rooms, one of which is the high school principal's office, the second is a counseling room for the dean and the other counselors, and the third room is the office of the superintendent of schools. All three rooms are provided with striped walnut paneling and rubber-tile floors.

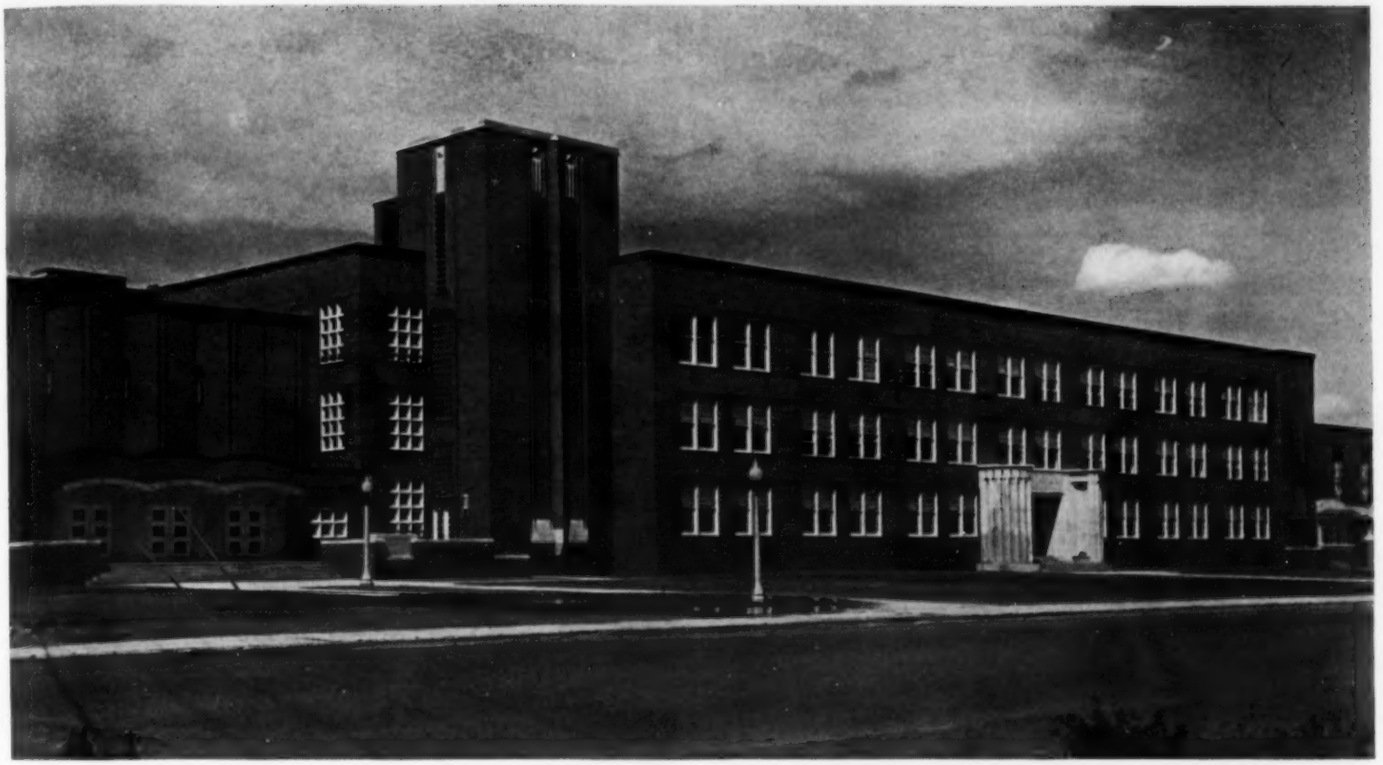
The gymnasium can be divided into two rooms—one for boys and one for girls, by means of an electrically operated soundproof folding partition with soundproof doors leading to corridors and treated acoustically in order to minimize the sound traveling through other portions of the building. The floor is of blox-on-end selected for their resiliency. There are eight sections of folding bleachers, recessed into the side walls when not in use, any section of which is operated independently and for all of which there is a seating capacity of 650. There are separate boys' and girls' locker rooms adjacent to the gymnasium with a shower room and drying room for each locker room. All locker-room walls are lined with glazed terra cotta and the floors are of terrazzo.

The library is on the second floor, adjacent to a large study hall and near the English and social-science classrooms. Since the library is vital to every department in the school, it is one of the most attractive units in the school. The main reading room will accommodate 80 students or over 12 per cent of the anticipated enrollment. There is shelf space to house the accepted standard of six volumes per pupil. The library unit includes a conference room for group work, with shelving for special reference collections. The librarian's office has a separate entrance for convenience in delivering books and supplies. It is equipped with a specially designed bench for mending and repairing books, for preparing old books for the bindery and new books for circulation. The main reading room has a southern exposure with an abundance of light admitted by 10 large windows. The room is paneled entirely in walnut. The floor is covered with rubber tile in a dark red and green block design. The ceiling is sound resistant to deaden noise. The furniture is modern in design in keeping with the architecture and is of maple finished in walnut.

The music department is located off the rear of the auditorium stage and is composed of five separate units: a soundproof rehearsal room for band, orchestra, chorus, etc.; two individual practice rooms for students needing extra help; and instrument storage room completely equipped with cabinets and shelves, which promotes care of school property; and a uniform storage room which insures a presentable band and choir to the public. The music department's location eliminates unnecessary moving of equipment

(Concluded on page 103)

The library is a show place as well as the academic nerve center of the school.

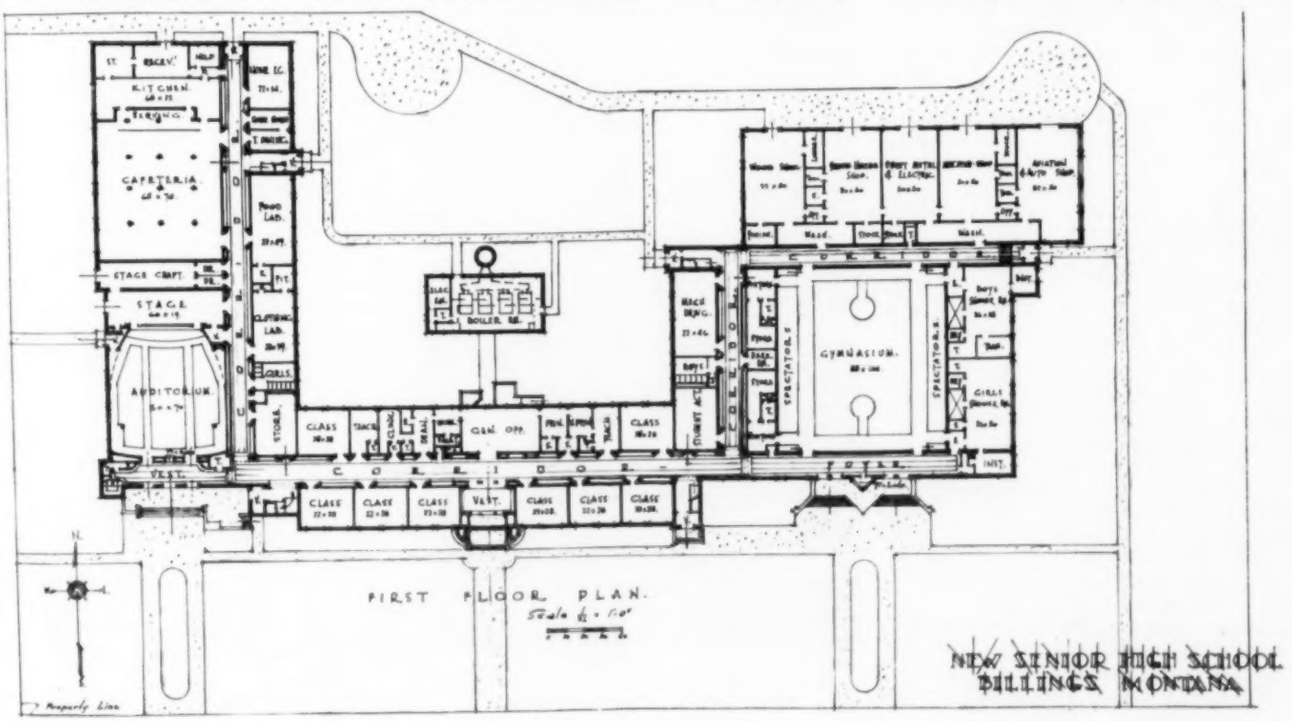


The auditorium wing and academic unit of the Senior High School, Billings, Montana.—Wm. B. Ittner, Inc., Architects, St. Louis, Missouri, and Cushing & Terrell, Associated Architects, Billings, Montana.

THE NEW SENIOR HIGH SCHOOL AT BILLINGS, MONTANA

The Billings senior high school was built to provide accommodations for the tenth, eleventh, and twelfth grades of the high school and to make possible a broad and flexible program of education for about 1800 pupils. A functionally progressive and growing educational policy in force in the school determined the planning of the building. This statement applies especially to the laboratories, the shops, the household-arts rooms, and the other nonacademic instructional areas. A high school no longer meets the challenge of the present if it operates as a college-preparatory training center only. It must provide definitely functional training for pupils who cannot and should not go to college.

The building which faces south on a site 644 ft. long by 690 ft. deep, occupies a com-



Entrance to the academic unit and the gymnasium of the Senior High School, Billings, Montana.

A close-up view of the auditorium entrance and stair tower showing the effective use of glass brick.

manding position in the community, adjoining an athletic field on the east and a public park on the west. Including the athletic field, the total site approximately contains 18 acres.

The building has an extreme frontage of 517½ ft. and an extreme depth of 266 ft. The main entrance is located on the axis of the center section, with the gymnasium adjoining the athletic field, and the auditorium occupying the west end. The cafeteria is immediately behind the auditorium, and the industrial-arts shops are back of the gymnasium.

The design of the building is in conservative modern style, depending for its effect upon the proper arrangment of the masses and an honest, logical use of materials. Long, horizontal lines predominate. Extensive use of ornament has been avoided.

The Auditorium

A special feature of the building is the auditorium which has a seating capacity for 834 persons and is equipped with a stage complete in all its appointments for school and theatrical purposes. The room is entered through a foyer, convenient for the public and accessible from the main school corridor. The room has been designed for comparatively small groups so that it is possible to create a desirable personal atmosphere necessary to young actors and actresses in dramatic, operatic, or debate programs. It is recognized that there is no need for bringing the entire student body together at one time. A radio public-address system serves the purpose when the entire student body must be addressed.

The room has a linoleum wainscot, plaster walls, and ceiling treated with acoustical material. The artificial lighting is of the indirect type. The stage equipment includes the newest type of dimmers, border lights, and spotlights.

The administrative group is located opposite the main entrance and is composed of a general office, private offices for the principal, vice-principal, dean of girls, and school nurse, with their work and storerooms — also rooms for men and women teachers, with private toilets.

A bit of the main stairway in the Senior High School, Billings, Montana.

The Gymnasium

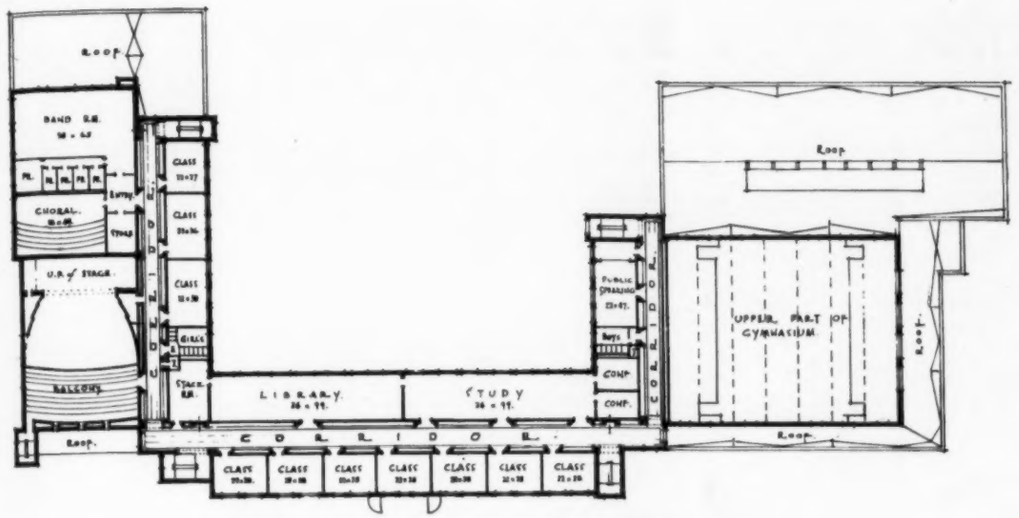
The gymnasium, 100 by 118 ft., provides for interscholastic games, with a seating capacity of balconies and folding bleachers of 2000 persons. The playing court is 50 by 84 ft., the maximum recommended for high school play. The gymnasium can be divided into two sections, and after the folding bleachers have been rolled back, two courts each about 45 by 80 ft. are available, separated from one another. Locker and shower rooms are of such size and design as to permit a physical-education program for the entire student body. In addition, facilities are available for equipment storage for the interscholastic squads.

The two large music rooms have abundant storage space for instruments, music, uniforms, etc. They are adequately sound treated so that several activities may be carried on without interfering with one another.

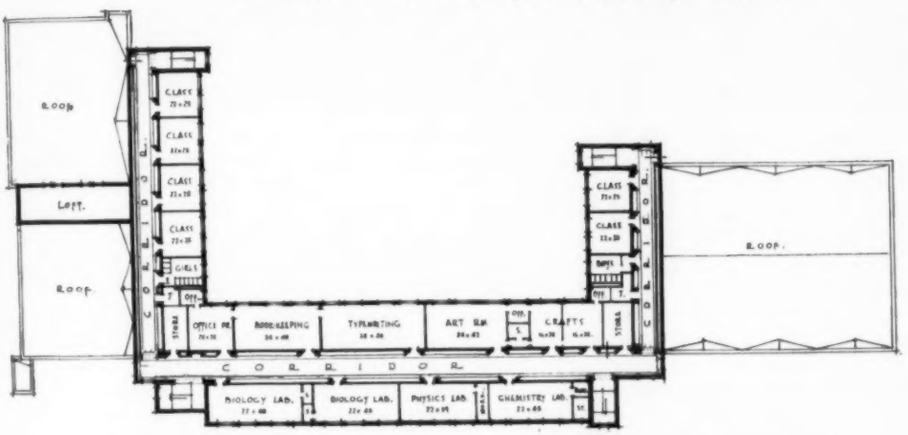
The provisions for fine-arts work include a large general-purpose room, storage space for materials and equipment, and two medium-size craft rooms. The equipment is so planned that there is provision for such activities as metalwork, leatherwork, and modeling.

The industrial-arts section includes large, well-lighted areas for such activities as woodworking, Smith-Hughes farm shop, electricity, sheet metal, machine-shop practice, automotive work, and aviation service. The household-arts department includes foods and clothing laboratories and a conventional type of classroom.

The school cafeteria is acoustically treated



Second Floor Plan, Senior High School, Billings, Montana.



Third Floor Plan, Senior High School, Billings, Montana.—Wm. B. Ittner, Inc., Architects, St. Louis, Missouri, and Cushing & Terrell, Associate Architects, Billings, Montana.

and well lighted, and has adjoining it a carefully designed and well-equipped kitchen.

The building contains the following educational units:

		Capacity	Total Pupils
24	classrooms	25–30–35–50	844
4	science rooms	24–32	112
1	art room	32	32
2	craft rooms	12	24
3	commercial rooms		130
2	music rooms (5 practice rooms)		120
1	public speaking		50
3	homemaking	28–50	106
5	boys' shops	24	120
1	mechanical drawing		30
46			1568
1	library		168
1	study (2 conference rooms)		196
1	auditorium		834
1	gymnasium (1600 spectators)		
1	cafeteria		400
1	administrative group		
52	Total		

In addition, there are the necessary toilet rooms, teachers' rooms, storerooms and boiler plant; pupils' lockers are recessed in the corridors.

Construction of the Building

The building is a fire-resistive structure with concrete-skeleton frame construction, concrete stairs and floors, and steel framing for trusses, with concrete foundations carried on concrete piers, extending approximately 18 ft. below grade to gravel. All classrooms, corridors, and stairways have plaster walls and ceilings. Corridors, stairs, and toilets have wainscots of glazed tile. Gymnasium, locker, and shower rooms have similar wainscots. Classrooms and second-floor corridors have linoleum floors. The first-floor corridor is maple.

The electric wiring is in conduit. The lighting system has been designed for adequate illumination of all study, work, and reading areas. Special outlets are provided for visual instruction, for power machines, etc.

The public-address system has a double simultaneous radio-receiving set, and classrooms may be connected for the greatest variety of activities. Class changes are signaled through the loud-speakers. Teachers may converse with the principal. A clock-program system is provided.

The plumbing includes the most sanitary and modern fixtures and roughing in. The heating system is low-pressure steam, with unit ventilators in all classrooms, shops, and locker and shower rooms. The auditorium, gymnasium, and cafeteria have separate fan ventilation. Steam is supplied by three welded steel boilers, using gas burners, each of 230 h.p. capacity.

The educational planning of the building was initiated by Supt. M. C. Gallagher. The board of education in charge was as follows: F. E. Williams, president; Sterling M. Wood; R. N. Fifield; E. E. Tiffany; Grant Boorman; F. W. Thompson; J. J. Berryman; and E. L. Marvin, clerk and business manager. William B. Ittner, Inc., acted as consulting architects and engineers, and Cushing & Terrell, of Billings, as architects.

The building is part of a project consisting also of an elementary-grade building, alterations to the athletic field, and alterations to the present junior high school. The cost of the entire project, amounting to $1,110,909.40, was financed partly by a grant of $499,909.10 from the Public Works Administration. The balance of the funds were furnished by the school district through a bond issue.

The building was completed in March, 1940. It has a total cubical content of 2,480,000 cu. ft., and the cost was as follows: General work, $584,045.15; plumbing and heating, $117,970.50; electrical work, $46,173.45. The total cost was $748,189.10, and approximately $111,579.22 were expended for equipment.

SENIOR HIGH SCHOOL, BILLINGS, MONTANA
Construction Details

Exterior, brick, limestone, and terra cotta.
Windows, wood double hung, steel projected type.
Insulation, ceilings and walls, *Celotex;* roofs, cork.
Floors: corridor and stairs, Terrazzo and alundum stair treads; classroom, linoleum; auditorium, cement, linoleum aisles; gymnasium, wood; toilet rooms, Terrazzo.
Acoustical materials, *Celotex.*
Heating and ventilating, unit ventilators in classrooms, direct radiation in corridors, indirect in auditorium and gymnasium.
Boilers, *Fitzgibbons.*
Unit ventilators, *Sturtevant.*
Temperature control, *Johnson.*
Lighting, *Holophane fixtures.*
Program clocks, *Standard Electric Time Co.*
Radio and broadcasting system, *RCA Mfg. Co., Inc.*
Toilet fixtures, *Crane Co.*
Drinking fountains, *Halsey Taylor.*
Shower mixing valves, *Powers.*
Blackboard and bulletin boards, Natural slate and cork.
Gymnasium equipment, *Medart.*
Folding bleachers, *Medart.*
Pupils' desks and auditorium seating, *American Seating Co.*

BUILDING NEWS

♦ Springfield, Ill. The board of education has voted to renew its fire-insurance policies on the buildings and their contents. The policies, which amount to one third of all the insurance, totaled $1,298,300. The board staggers its insurance over three-year periods, and the remaining insurance will continue in force for a year and two years respectively.

♦ The National Youth Administration has launched a program to build approximately 1000 agricultural vocational buildings, to be equipped and operated by the local vocational school systems. Applications have been received for the construction of 264 buildings and 12 additions to existing buildings. These buildings include vocational shop buildings, home-economics cottages, farm buildings, and similar facilities to add to and improve the local school plants.

The new program has been begun to help the local school systems in establishing vocational facilities in areas where those facilities are lacking. It is the purpose to establish these programs and facilities in rural areas where the population is 2500 or less.

♦ Milford, Conn. The school board has approved a bond issue of $280,000, which is to be used for school-building purposes. The bonds will be on a 20-year basis, and will be retired at the rate of $14,000 annually.

♦ Petersburg, Ind. A new township school building is proposed for Washington township, to cost $125,000.

Color in the Schoolhouse

C. T. Masterson, R.A. and W. G. Darley, E.E.[1]

For many years color in the schoolhouse decidedly has been in a rut. In fact, thinking along this line had been dormant for so long that until very recently few, if any, paint companies even suggested in their literature that other than buff be used in the classroom. But now the school administrator in the driver's seat, with a vigorous tug on the reins, has turned Old Dobbin, and we're out of the rut and bounding gaily across the field splashing our little red wagon with greens, blues, grays, yellows, and — yes, peach and lavender as we go.

As we take out through fields so new, without a great deal of precedence to guide us, and until administrators are in a position to say that they have traveled this route and found the going smooth, or traveled that one and found the way beset by hazards, we must put our faith in data offered by those who have studied color objectively and subjectively. So, let us look at some of the underlying principles of color selection and see how we might apply our present knowledge to the selection of colors for classrooms.

This library is so deep that it requires illumination for a good portion of each day. It is lighted by means of seventeen 500-watt Mazda lamps on separate circuits and switches. The illumination is maintained at 20 footcandles in service. The walls are green.

Probably the most common color associations are that derivations of red stimulate a feeling of warmth, while derivatives of blue and green produce a sensation of coolness. Possibly, these reactions have developed as we have developed. Fire is red and hot, tan sand is associated with heat — cool shadows are blue and gray, trees and grass are green.

Another association is that the warmer tones have become known as advancing colors, while the cooler tones are referred to as "receding" colors. This may have developed through long association with small warm-colored interiors and vast cool-colored exteriors. The cave and other early interiors may well have taken a warm hue from the earth or clay of which the habitation was made or from which it was dug. Even if walls were neutral, the habitation probably was lighted by open-flame sources quite high in red content, which would make even a white surface appear warm. On the other hand, nature presents her colors mostly as soft or pastel colors, "grayed" colors, if you please. All colors seen at a distance are grayed or softened by the intervening atmosphere, and the fact that as the retina of the eye receives more color impressions the combination of many hundred color images has a blending or graying effect. Thus the grays, blues, and greens are more likely to be associated with the outdoors and illimitable distances.

Another reaction to color which we experience is somewhat emotional. The warmer tones tend to be stimulating as contrasted with the cooler tones which tend to be more restful. This might result from the association of fire as being not only man's best ally, but probably his deadliest enemy — an enemy which he must stand ready to fight at all times with vigor and courage. When everything is blue and green and gray, we can relax, but when orange and yellow burst uncontrolled upon the view — well, to say the least, there is usually a definite reaction. We do, for instance, admire and react strongly to a beautiful sunset which is an abstract mural in slow motion.

So far we have dealt with more or less psychological reactions, and until a few years ago that would have been quite enough. The rapidly increasing realization of the need for some artificial lighting in the average classroom most of the time, however, brings up

[1]Members of the Engineering Staff, Nela Park Engineering Department, General Electric Company.

This typing classroom has green walls and an ivory ceiling and is illuminated by six 750-watt indirect luminaires.

This attractive art classroom has walls of green and a ceiling of buff and is illuminated by four 750-watt lamps in indirect luminaires.

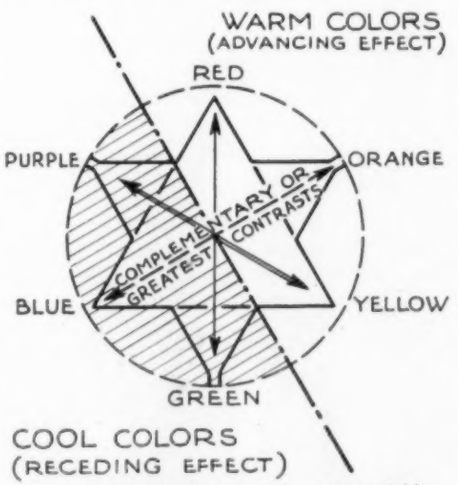
This typical classroom is illuminated by means of four 750-watt and two 500-watt Mazda lamps on separate circuits and switches in pairs. **The walls are a warm grey.**

another point wherein a difference lies. For instance, the lighting of a room with Mazda C (tungsten filament) lamps provides a warmer light (an excess at the red end of the light spectrum) than daylight. When light strikes buff walls the cooler colors are absorbed and the warmer tones reflected into the room, which naturally accentuates the warmth or yellow color of the light from Mazda C lamps. It is quite practical and possible to paint the walls with cool colors having the same reflection factor as the warmer shades, and it is being done. These colors will reflect "cooler" light back into the room, thus tending to counter-balance the excess warmth of the light from the filament lamps and so producing a color of light closer to daylight which, psychologically again, we seem to prefer.

Before very long we will undoubtedly find classrooms lighted with the new Mazda F (fluorescent) lamps. Probably both the white and daylight lamps will be utilized for this purpose. The color of the light flux emitted by these two lamps differs one from the other as well as differing from that emitted by filament lamps. The light from the *white* fluorescent lamp is of about the same color temperature as the so-called white light from blue-bulb daylight filament lamps. The light from the *daylight* fluorescent lamp approaches that from an overcast north sky. While the color temperature of the white fluorescent lamp is thus somewhat cooler than that of the more common filament lamp, it is still warm enough compared to daylight to make it desirable to take advantage of the cooler colors in many locations where it is used. At the same time, neutral shades are very suitable while, as with filament lamps, there will be occasions when the warmer tones are appropriate. Where the daylight fluorescent lamp is used, the same considerations for wall coloring will apply as for lighting with natural daylight. Thus we might expect to find that with this lamp where cool colors are used they will be "grayed" and that it may be desirable to make more use of the neutral and warmer tones.

The case for the cooler wall colors might be summed up then, as follows: It is desirable to use them because they have a less exciting influence and many teachers have said that they would prefer the more restful effect. Cool colors tend to make the room appear larger, which seems to be desirable when an area approximately 20 by 30 ft. is occupied by 30 to 40 pupils. Cool colors used with artificial lighting from filament and white fluorescent lamps result in a color sensation which is cooler and possibly more pleasing; furthermore, in a great many classrooms today it is desirable to take advantage of the suggestion of coolness since artificial air conditioning (with cooling) appears as yet somewhat in the future for most schools.

In applying colors to the various areas in the schoolhouse, the foregoing factors must



A simple color wheel provides a dependable basis for selecting tints and shades for schoolroom interiors.

be correlated with the numerous conditions encountered. It would seem that the first consideration would be the artificial lighting. Is the area to be lighted with warm light from Mazda C lamps, warmish light from white Mazda F lamps, or cool light from daylight Mazda F lamps? Will the artificial lighting be used enough of the time to influence the choice?

The size of the room is also important — is it desired to have the walls appear to advance or recede? For instance, on this basis rooms smaller than standard classrooms might be finished in a receding green or blue color; standard classrooms might use green; slightly oversized rooms gray, and very large rooms buff.

Walls of blue make this mechanical drafting room attractive. It is illuminated by six 750-watt Mazda lamps in indirect fixtures.

Another factor is the exposure of the room. Rooms on the north and northeast side of the building could be considered as a logical place for warm buff walls. Rooms having a southern or western exposure would be blue or green; and those with an eastern exposure would be green or gray. Green is considered slightly warmer than blue; a very light green begins to approach yellow, which is warm.

A fourth factor is the climate in which the school is located — that is, a classroom having a northern exposure which might be painted buff in Maine, might well be painted a shade of green in Texas.

Added to these considerations, which might some day be amenable to expression in charts and graphs, is the more or less unpredictable factor of what one sees when one looks out through the school windows. For instance, in one school a very large study hall would probably have been painted buff had it not been for the fact that the outside prospect from any place in the room was the red-brick wall of an adjacent building. It was decided, therefore, to paint the walls in a cool neutral gray.

Other important factors are the use to which the area is to be put, the length of time to be spent in it, etc. For instance, we do not work or live in entry ways or halls, and so we can have more exciting decoration here. One very striking combination for a corridor was a brilliant yellow upper wall and green dado. The effect is like sunlight and is much more attractive than the former standard buff. Again, an entrance way was painted flat white in its entirety, thus providing a relatively bright area as one entered the building.

which helped the eyes to adapt themselves during the day to the relative semigloom of indoors (compared to outdoors).

Because of the physical exertion which takes place in a gymnasium, it would seem that such areas would be a logical place to apply colors a shade or two cooler than would normally be applied to a similar-sized room used for other purposes. If experience indicates that domestic-science rooms become overheated, the same might apply to these rooms.

Aside from good structural and functional buildings, cheerful, pleasant, and desirable interiors are achieved by comfortable and sufficient lighting plus a careful selection of wall colors. In general for schoolhouses cool colors are recommended. These are greens, blues, and neutrals. (Neutrals are gray, white, and silver or aluminum.) Tans, browns, reds, and yellows suggest warmth and are to be avoided in large quantites for working environments. However, in all interiors monotony should be avoided and, therefore, small amounts of warm complementary colors are desirable. (Complementary colors are those colors which flatter and are most opposite — for example, red with green, and purple with yellow.)

In decorating it is also well to keep in mind other articles in the room such as the color of the desks, equipment, draperies, and pictures. Naturally, rooms in which we do not work or live for any great length of time can be more colorful and of more striking design.

A Rural High School Shop and Classroom

Louis M. Roehl[1]

Many school systems desire an outside structure, apart from the regular school building, for shop and classroom work in vocational agriculture. Plan for such a building, 40 ft. by 90 ft. is presented.

It will be noted that the structure is built with 12-ft. side walls and with a quarter-pitch roof. Half of the building, the classroom end, is built with a second floor, the ceiling of the rooms of the first floor being 9 ft. This leaves room above to provide storage space for lumber, iron, and lockers for keeping the work being done by those in shop classes. These lockers may be inexpensive, wooden containers built by the carpenters. A depth of 2 ft., 6 in., and a width of 18 in. has been found suitable for the storage of work in the process of construction. In some instances the school administrators may feel that the storage facilities provided by the storage room on the first floor is ample. In that event the side walls of the building need be only 10 ft. high.

Since the course of shopwork recommended for a department of vocational agriculture includes the repairing of farm machinery, wagons, and tractors and the construction of large carpentry projects such as brooder houses, hog and poultry feeders, etc., a large door is necessary. Experience with doors varying in size reveals that one 12 ft. wide is better than those of narrower widths. The overhead door is better than any other for this place since it does not require floor space as do doors that swing in. It should be noted on the drawing that a common outside door is placed near the big door, the reason for which is obvious.

It is assumed that the floor of the shop is near ground level and a concrete or other paved approach to the door made so as to facilitate easy entrance to the shop with machinery.

As one recalls the arrangement of the local blacksmith shop, there was always a clear floor space in front of the big door and at one side a forge and an anvil. Near the forge was a blacksmith's post vise at a bench. Near by was a drill. Since the smith is no longer in service in many communities and it is more and more becoming the work of the individual farmer to do much of the work himself that was formerly done by the local smith, it seems to us sound school and shop management to see to it that the school shop is planned and equipped to make the same kind of work possible. And so in this plan two forges have been placed near the big door. A hand-power drill is fastened to the post near by. A motor-driven drill press is fastened to one other of the supporting posts of the shop. It is intended that each boy in a shop course have experience in drilling metal with a hand drill, chain drill, hand-driven post drill and a motor-driven post drill. He will thus become informed of the best investment for his own future needs. Several metalworking vises are at the bench near the forges, and a power-driven grinder is handy for all manner of work that may arise.

It may be noted that there are other metalworking vises fastened to a long workbench at one side of the shop for cold metalworking, soldering, harness repairing, and such other work as requires a metal vise.

One bench is suggested for the work in electricity. It is understood that a framework may be built for work in wiring and attaching fixtures at such place in the shop as may seem best to the man in charge.

Shop experience tells that more than one grinder is desirable in a well-planned shop. No skill is appreciated more by those who use tools than the ability to fit them. In communities where crosscut and circular saws are used to cut and buzz up wood for home use, one of the outstanding kinds of work that should be included in the shop course is the gumming and filing of crosscut and cordwood saws. For this work it is desirable that a grinder be fitted with a saw gummer and that it be left on the shaft for that work only. It will be noted that a saw gummer is located on a table attached to one of the supporting posts of the shop.

Two types of shopwork have been and are carried on successfully in evening classes by the out-of-school group. One is the repairing of farm machinery by the men, and the other is the repairing and refinishing of furniture by the women. The former requires no equipment other than that required for the regular shop courses of the high school students. The latter, however, calls for a wood lathe. Very frequently in furniture repairing a new part needs to be turned. It is for this reason in particular that a wood lathe is suggested. The wood lathe does not have enough use in the farming occupation to warrant high school students to learn its operation for the farming industry other than as suggested.

Whether or not to include the metal lathe in the rural school shop is a question. One of the outstanding uses of a lathe is to turn down the commutators of the electric motors. In most communities where a community workshop is in operation this work might better be left to the men in that shop. Since the shop in a rural high school is planned and operated for those who have chosen the farming occupation, the metal lathe to them as farmers is of minor importance. A desirable place for the location is shown on the plan.

Since those in the farming occupation do not have sufficient use for a saw and a jointer to warrant buying them, it is held that our job as school administrators and teachers of shopwork is to see to it that boys in shop courses in a rural high school be taught how to do carpentry work with hand tools. After they have become somewhat skilled in the use of hand tools there may be a few who wish to learn their operation for home use. In placing the machines in the shop it will be noted that they are placed so there is room for long pieces to be run through in opposite direction and room at each side for those who operate them.

It will be noted that six double workbenches are placed in the shop. Experience tells us that benches 34 by 54 in. in size, equipped with two rapid-acting vises, are well suited for the work. To have them larger requires too much floor space and is not needed for such benchwork as should be included in the source.

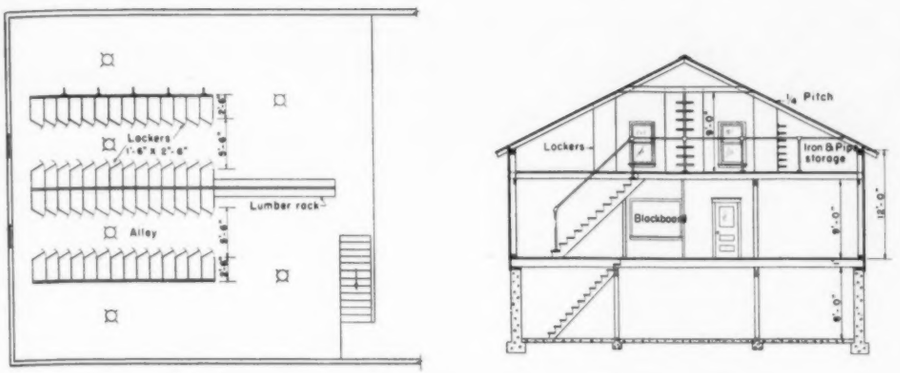
Tools for woodworking are kept in a cabinet on the wall of the shop in preference to having them in drawers at the benches. Location for this cabinet is on a wall of the office.

Tools for metalworking are handiest on the walls of the shop on racks, hooks, and inclined shelves where they are to be used.

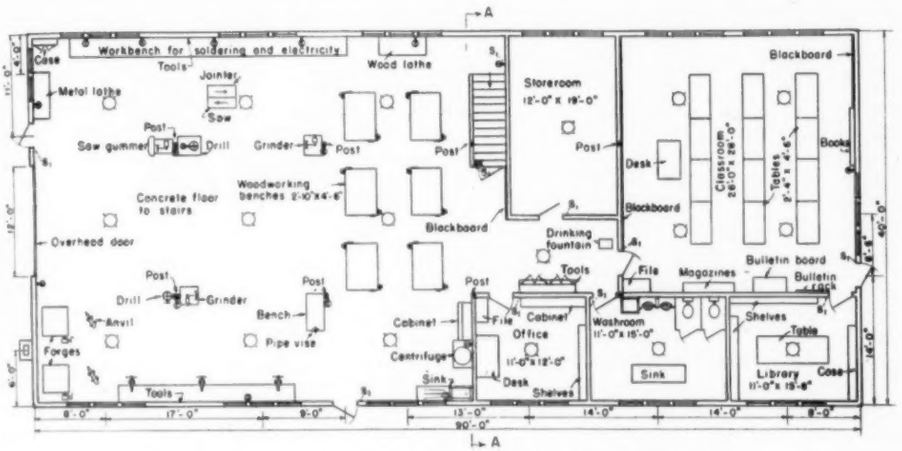
The corner of the shop next to the office is for the milk-testing equipment. This consists of a table for the centrifuge, a sink, and a storage cabinet. Teachers of agriculture prefer having this work in the shop rather than in the classroom.

A storage room is one of the outstanding needs of any well-planned building designed

[1]Professor, New York State College of Agriculture, Cornell University, Ithaca, N. Y.



Left: second floor plan of rural school shop. Right: cross section of building.



First floor plan for separate shop building for rural high school.

for work in agriculture and the shopwork relating to it. In the room herein planned it is left to the local teacher or school administrator to plan the interior of the room with cabinets and shelving as may be needed. A place for the storage of short pieces of lumber in an orderly way adds greatly to the orderly appearance of the shop. A cabinet for this use may be built in the storeroom.

One of the oustanding needs of the rural high school is a library where may be kept the literature that pertains to vocational agriculture and farm mechanics. Here is to be kept much of the advertising literature in farm machinery, pumps, water supply and waste disposal equipment, fencing, electricity and its application to home and farm needs, farm buildings, building materials, hardware, lumber, poultry requirements, and all other literature that is of interest and value to those whose interest is in rural life. Such a library is suggested in the plan. It is placed where noise of the shop is least disturbing.

In communities where the library facilities are adequate, the library may be omitted, and the washroom, office, and milk-testing space may be moved toward the classroom end of the building. In that event, the space now used for the milk-testing work may be used to extend the shop facilites for laboratory equipment for the study of water supply and waste disposal.

A blackboard for the shop is placed on the wall of the storage room near the stair. This may be aided by the use of a movable blackboard if one is needed.

A drinking fountain is placed in the hall near the entrance to the classroom, thus making it readily accessible from all points of the building.

The room is planned for a class of 24 boys. Tables are 2 ft. 3 in., by 4 ft. 6 in., for two boys at a table.

It will be noted that windows are placed at two sides of the classroom. The front of the room and part of the back wall is equipped with blackboards. At one side of the room is placed the bulletin rack, magazine rack, bookshelf, and a file for records. A bookcase or shelving for books is suggested at the rear of the room.

The basement is excavated under the classroom half of the building and where a steam-heating plant is installed in the basement. The latest type of copper fin radiators are used and suspended from the ceiling with a blower back of each radiator to circulate the heat. Stairs leading to the basement are under the stair that leads to the storage loft.

NASHWAUK FIELDHOUSE AND STADIUM

The new athletic field at Nashwauk, Minn., was begun some ten years ago, when an effort was made to cut down a mound, fill in a depression, and remove large boulders on the site. The field is 800 ft. long, 400 ft. wide at one end, and 600 ft. deep at the other end. The field as it stands, is level as a floor, and yet is well drained. It contains a fine, cinder track of one half mile, which encloses an excellent football field so well sodded that it doesn't show any wear at the end of the season. There is also a baseball diamond, with the outfield overlapping part of the football field. Four fully concreted tennis courts are provided, and areas and facilities for other games are available.

The fieldhouse is constructed of brick, with light, vitreous brick above ground, and concrete and steel in the basement; the roof is of concrete. In the basement is a good heating plant, with ample facilities for warming the dressing rooms and heating water for the showers. A lobby and an office on the ground floor supplement the shower and dressing rooms.

The grandstand has a seating capacity of 800 persons. It is constructed of concrete, reinforced with steel. The seats are of wood on metal supports. The grandstand is entered from the outside and stairways lead to the seats above. The space under the stand is used for storage. A section of it is set aside for curling courts, baseball practice, and other early spring training.

The entire field is lighted by a floodlighting system of 72,000 watt capacity. Each of the 48 lamps is of 1,500 watts power. The lights are supported on towers, each having a height of 60 ft.

The total cost of the project was $89,380.54, including labor and material. The cost of the fieldhouse was $18,860.18; of the stadium, $12,212.19; of the field, $5,606.34; of the lighting, $7,890; of the labor and material, $35,811.

—D. F. Dickerson.

The Nashwauk Field House, Nashwauk, Minn.

La Crosse Builds an Adult School

John B. Coleman[1] and W. F. Oppermann[2]

The 40,000 people of La Crosse, Wis., are the builders of a school of which they are justly proud. They are a progressive people who believe in their personal resources and in maintaining and elevating the social, educational, and economic level of their adult population. Only a year ago, they doubled the size of their Vocational and Adult School plant, and already they are wishing that they had done a bigger job. The building is 144 ft. long, 345 ft. wide, and one to three stories high. It was built in compliance with public demand.

Twenty-five years ago this Vocational and Adult School was housed in a room of an old ward school. In a few years, the institution acquired more space, and finally took over the entire ward building. Sixteen years ago, the first building solely for vocational and adult education was erected. Six years later an addition was built, and two years ago ground was broken to begin construction that is a climax in adult education.

The La Crosse achievement is unquestionably grounded in a board of vocational and adult education which has always been intelligently representative of an intelligently progressive people. It is a representative board on which two members are employers and two are employees in their respective walks of life. A fifth member is the superintendent of the city board of education. This board originally adopted a policy of immediate service to the adult population. Consistently it has aimed to give the adult student the service he wants and needs and by which he can profit. No endeavor could have had greater force in making and keeping a school flexible and free. As the school progressed, it has been fluid to change with the ever changing wants and needs of progressive adults living in times of most chaotic change. Within ten years there was a change from a part-time to a full-time school, from compulsory attendance to voluntary attendance, from the enrollment of elementary school failures to the enrollment of students with high school and college success. The board's experiences in rendering a continuously changing service are today reflected in an adult school plant at La Crosse highly useful, accessible, and flexible.

The La Crosse board has never asked for a building. The members have always confined their attention to their service job. Every service rendered seemed to reveal the need for other services to be desired. Adults went to school. The instruction was good, but the light was poor. The rooms were too crowded. A number did not get into class at all and the waiting list was jammed. The cooking school was scheduled for 2 o'clock and women began coming at 12 o'clock to get a seat. The Vocational and Adult School was the source of employees for the employer. It was sometimes called "an occupational service station," and students who graduated into a job were usually replaced by several unemployed, and by persons working for promotion.

Sentiment for building facilities has always somehow piled up in community volume like water behind a dam until the break came with a great rush. The recent expansion more than doubled the institution's floor space, but even now, nothing has been overdone in the estimation of the public. The adults have been to school and have seen the new structure already jammed to capacity. On one occasion a few people failed to get seats in the new auditorium, and so the impression is abroad that the new auditorium isn't big enough. The sentiment that "pretty soon we will have to build again" already has a foothold.

Over 4000 adults enroll in evening school classes annually, and over 1200 young adults and youth enroll in the day school from a city population of 40,000 people. These people come from every city block and every walk of life. When there is something they want and need and by which they can profit, they invest their time and money to get it.

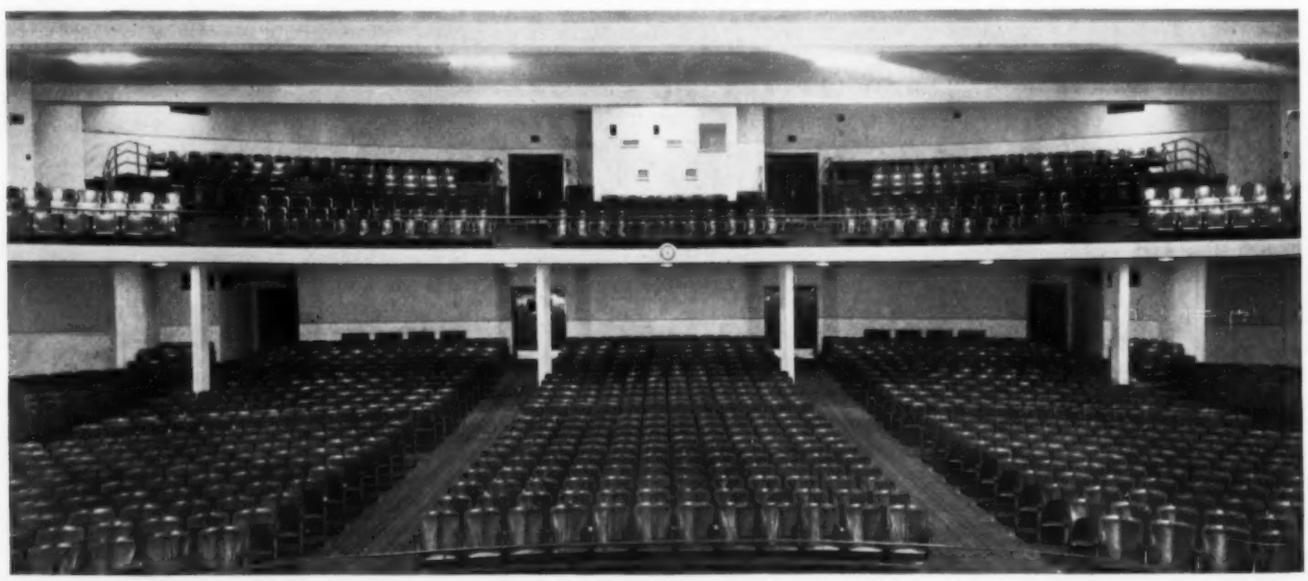
The Auditorium

La Crosse needed an auditorium. Community forces had battled with this problem time and again for 25 years. The facilities of the old Vocational and Adult School had been in service to the community for conventions, meetings, and all possible types of civic programs. The school also needed an auditorium and the city council suddenly became aware of the fact that a good auditorium for the vocational and adult schools would automatically solve their problem. The board of vocational and adult education was asked to build and administer the auditorium, to draw up plans for a school building, and to rush the work. The PWA climaxed the rush by placing a deadline for the submission of plans.

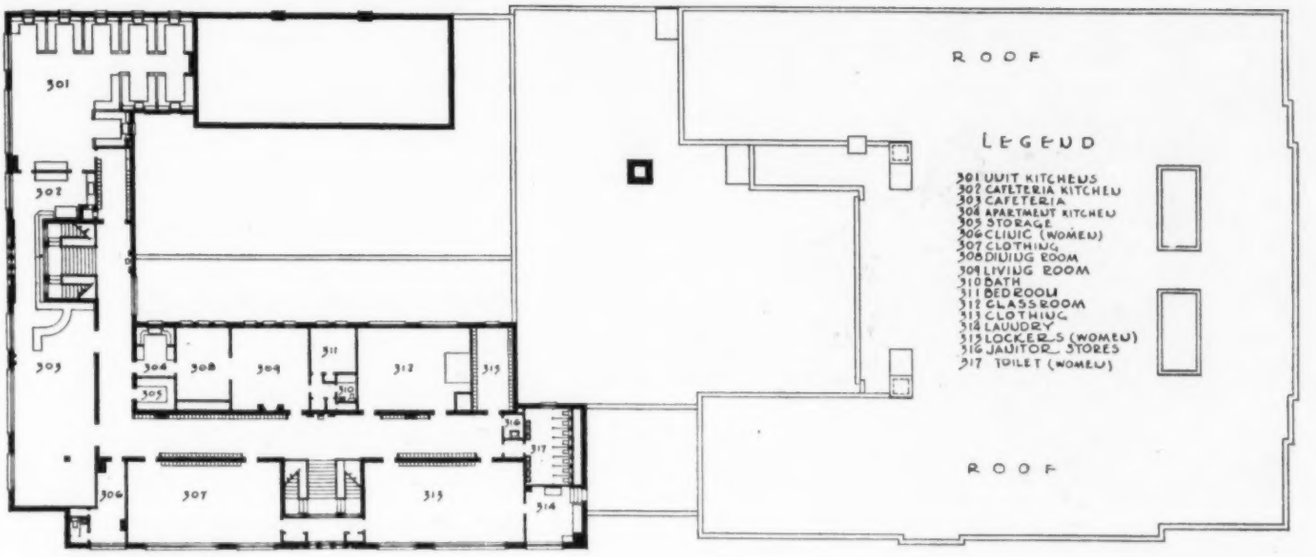
The auditorium has been built and put to use. Nothing has been overdone, yet it is all that was to be desired. The main floor is 77 by 103 ft. The stage is 28 by 66½ ft. The proscenium opening is 40 ft. wide. Twelve hundred twenty-nine upholstered seats, all facing the center of the stage, and standing on an incline, are placed on the main and balcony floors. Every seat is favored, and because of the perfect acoustics, programs may be heard equally well from any place in the room. Side walls are curved toward the stage and treated with acoustical material at certain points on the back wall to make for correct acoustics. La Crosse people have been there to see and to hear and to sit comfortably. At last they have an auditorium.

Ceiling lights are recessed. The stage is fully equipped with colored lights and spotlights. All the lighting is on dimmer banks. Adjoining the stage are three storage rooms, a waiting room, and a completely equipped kitchen. Dressing and shower rooms for men and women and make-up rooms are just be-

[1]Director of Vocational Schools.
[2]Co-ordinator of Vocational and Adult Schools.

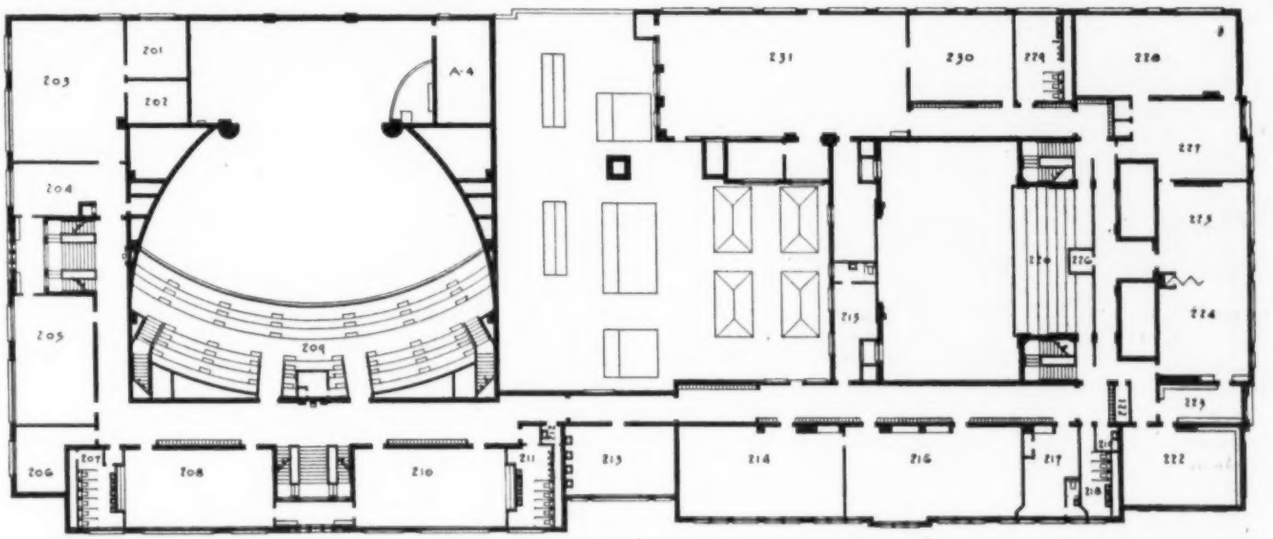


The auditorium looking from the stage toward the balcony and exits. The room serves ideally for general meetings and for school theatricals.



THIRD FLOOR PLAN

La Crosse Vocational and Adult School, La Crosse, Wisconsin.— Boyum, Schubert & Sorensen, Architects, La Crosse, Wisconsin.



SECOND FLOOR PLAN

201 Duplicating
202 Ediphone
203 Machine Calculating
204 Comptometer
205 Shorthand
206 Commercial Office
207 Toilet (Women)
208 Typing
209 Auditorium Balcony
210 Typing
211 Toilet (Men)
212 Janitor Store
213 Cosmetic Art
214 Class Room
215 Men Instructors
216 Class Room
217 Women Instructors
218 Toilet (Women)
219 Janitor Stores
220 Balcony (Gym)
221 Storage
222 Class Room
223 Library
224 Class Room
225 Class Room
226 Projection Booth
227 Press Room
228 Composing Room
229 Toilet (Men)
230 Class
231 General Metal Shop

low the stage. A scenery storage room, also under the stage, is 17 ft. deep and 85 ft. long. Adjoining the scenery storage is a fireproof paint room and a room completely equipped with cupboards and storage facilities for a vast array of costumes and paraphernalia.

Dressing rooms have three washbowls each, shower bath, and toilet. The make-up room has seven individual-mirrored dresserettes with lights. Lockers are placed in each of the rooms. The waiting room, just off the stage, has a carpeted floor and easy chairs and equipment to make a comfortable waiting or reception room. The kitchen has an electric stove, cupboards, hot and cold running soft water, and gas connections. Either gas or current can be readily extended to the stage to connect with household appliances there. Above the stage is the gridiron with 25 battens, ropes, pulleys, counterweights, and six sets of lines. Regular equipment consists of asbestos curtain, valence, main draw, olio curtain, cyclorama, borders, tormentors, flats, and motion-picture screen. A double door from the stage floor opens directly to the alley to enable anything as big as a truck to drive in.

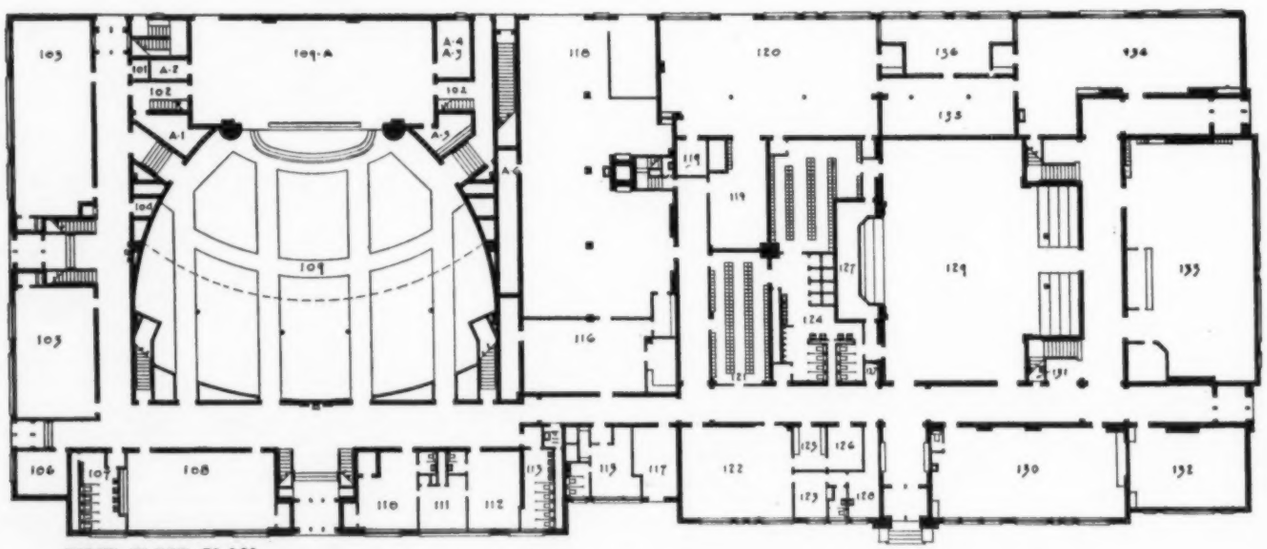
The auditorium is individually heated and air conditioned. The picture booth is equipped with a 16-millimeter sound machine, operated with a carbon arc light. Sixty seats can be placed in the orchestra pit. The auditorium floor is readily accessible through nine public entrances. The motion-picture booth, orchestra pit, stage, light-control platform, and dressing rooms are connected by telephone. A loud-speaking system is installed. The auditorium is on the inside address system of the school, with its main control in the director's office. A permanent telephone wire connects the auditorium with the local radio broadcasting station.

General Features of New Building

In the erection of the addition, the former school building was completely remodeled, resulting in a structure with connecting corridors, serving as a single building yet separated into three major departments: Trades and Industries, Homemaking, and College of Commerce.

A foremost feature of the new building is the lighting. All lighting is totally indirect, except in the shops. The old building was completely rewired. Five-hundred-watt and 750-watt light bulbs were installed, and the lighting varies from 18 to 35 candle power on the tables in the classrooms and laboratories where the work is done. Natural lighting is the best obtainable through large-area window glass. Stairways are lighted through the use of glass-block walls. Throughout the building are numerous partitions of plate glass, which decidedly improves the supervision as well as the lighting. Classroom walls are light, and the ceilings are white. Door casings, built-in cupboards, and rails are in green enamel. Blackboard and bulletin board-trim is aluminum. Window sills are of wide yellowish mar-

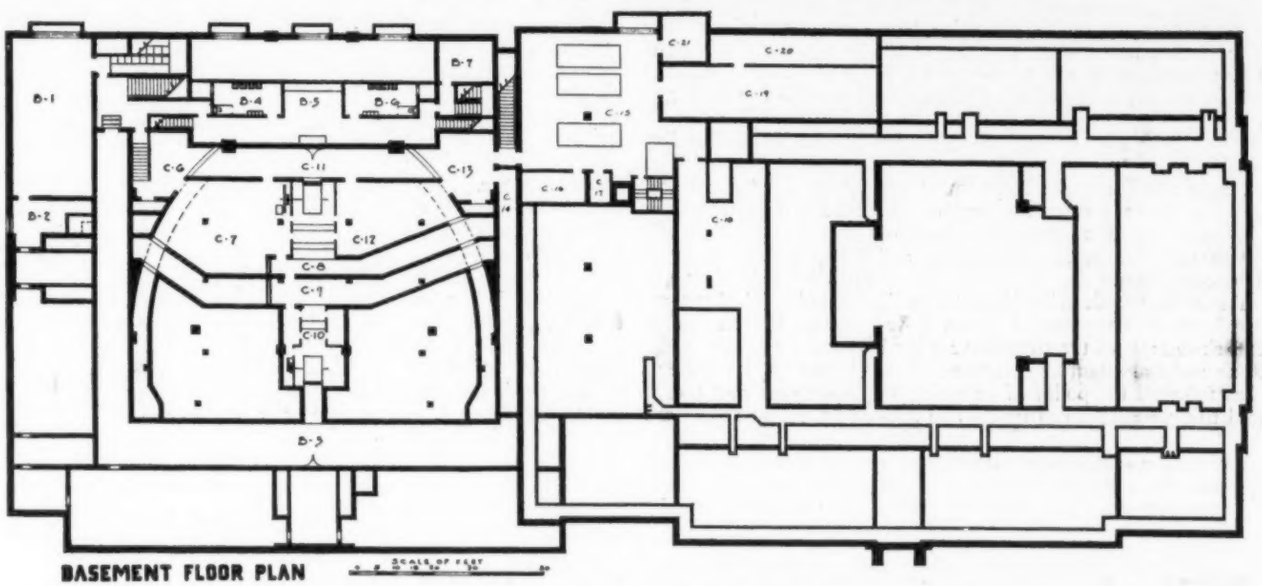
Top left: the complete beauty shop is the most attractive department of the women's section. Top right: the machine room of the commercial department has every type of modern accounting and office production machine. Lower left: the sewing department prepares both for home and for industry. Lower right: the arrangement of the cooking laboratory simulates typical home kitchen conditions.



FIRST FLOOR PLAN

A-1 Storage
A-2 Storage
A-3 Dressing Room
A-4 Dressing Room (Above A-3)
A-5 Kitchen
A-6 Storage
101 Public Telephone
102 Stage Entrance
103 Bookkeeping
104 Storage
105 Class Room
106 Placement Office
107 Men's Toilet
108 Class Room
109 Auditorium
109-A Stage
110 Director's Office
111 Private
112 Conference
113 Women's Toilet
114 Janitor Stores
115 Lockers and Showers (Women)
116 Auto Laboratory
117 Receiving Room
118 Auto Shop
119 Storage
120 Cabinet Shop
121 Lockers (Men)
122 General Office
123 Private
124 Toilet (Men)
125 Storage
126 Storage
127 Storage
128 Clinic (Men)
129 Gymnasium
130 Drafting
131 Janitor Stores
132 Class Room
133 Machine Shop
134 Woodworking Shop
135 Erecting Room
136 Finishing Room

Left: the cabinet shop is equipped and operated to provide experiences in both custom-made and production work. Right: the machine shop provides experiences planned to prepare students for advanced shops in local industry.



BASEMENT FLOOR PLAN

B-1 Bicycle Parking
B-2 Incinerator Room
B-3 Plenum Chamber
B-4 Dressing Room (Men)
B-5 Make-up Room
B-6 Dressing Room (Women)
B-7 Contactor Room
C-6 Recirculating Chamber
C-7 Air Chamber
C-8 Fresh Air Intake
C-9 Fresh Air Intake
C-10 Class Room Fan
C-11 Auditorium Fan
C-12 Air Chamber
C-13 Plenum Chamber
C-14 Pipe Chamber
C-15 Boiler Room
C-16 Dry Kiln
C-17 Storage
C-18 Fan Room
C-19 Rifle Range
C-20 Dry Kiln
C-21 Shaving Bin

ble, and the blinds are venetian. All classrooms have cupboards, lockers, or closets. The floors are asphalt tile for classrooms, and rubber tile for corridors, kitchens, and beauty salon.

In the corridors are four recessed display cases. Above the entrances art-glass windows show artistic pictures of the various arts and crafts representative of the vocational and adult schools. Fountains are recessed in blue-tile panels, and local scenes and skylines in beautiful tile decorate the panels at the various stairway elevations. The corridor wainscoting is tile, and the corridor lockers are recessed.

The building is equipped with an inside public-address system, with talk-back feature, controlled with relation to any room or rooms. Radio programs may be received and broadcast. Chimes over the address system sound the time for passing of the classes, and hall gongs have been installed for the purpose of summoning the engineer, janitors, or administrative personnel to the office. The building has two trunk telephone lines, with eight extension lines distributed to the office personnel, to the placement department, and to the three instructional departments. Inside telephones connect the various rooms with one another. A telephone booth has been installed for the use of the public.

Janitors' storerooms, with slop sinks are distributed throughout the building adjoining toilet rooms but connected with the corridor. A receiving room opens on the street on one side and on the corridor on the other. There are clinics for men and women, as well as a rest room for faculty men, and another for faculty women.

Administrative Office Suite

The office suite consists of the director's private office, flanked by a conference room on the one side, and the outer secretary's office on the other. The suite includes two individual toilets, two clothes closets, a storage closet, and a built-in safety vault. The outside walls and the wall separating the main rooms from each other are built of block glass. The inside address-control system is located in the director's private office.

The former offices in the old building, remodeled for service as general offices, house the co-ordinators and clerical assistants. The director's office is limited to purely administrative functions.

The placement office is located next to the main entrance, separate from the regular school offices. The students make direct contact for employment with this office.

Homemaking Department

The homemaking department is on the third floor and occupies all the space on that floor. It includes a main kitchen, a cafeteria kitchen, a cafeteria, two clothing rooms, a general classroom, laundry, a fitting room, a girls' clinic, a locker room, a toilet, and a model apartment. The apartment has its individual kitchen, dining room, living room, bedroom, and bath. The beauty salon, located on the second floor, is used by both the homemaking and the College of Commerce departments. There are nine unit kitchens in the main food laboratory and a large work floor space for class assembly. The cafeteria kitchen is

more commonly referred to as the quantity cookery kitchen. It has direct connection with the cafeteria and is separated from the main foods laboratory by plate-glass partitions. The unit kitchens are provided with various types of kitchen equipment. Garbage is dropped from the cafeteria kitchen directly to the incinerator in the basement. An exhaust fan is placed above the big stove, and the cafeteria has a steam table.

College of Commerce Department

The College of Commerce occupies the first and second floors of the new addition. It has a number of large rooms. Two rooms are equipped with 60 typewriters each, and one bookkeeping room will comfortably seat 70 persons. The commercial office, in the center of this department, is separated from an adjoining classroom by glass partitions. The adjoining classroom is used by the supervising teacher. The office-machine-operation suite has four connected rooms separated by plate-glass partitions. The main room is used for all types of calculation machines. There is a small adjoining room for duplicating machines and another for dictation phonograph operation. The comptometer room provides space for 20 machines, and one instructor can give instruction and supervision in this suite of rooms.

Trades and Industries Department

The Trades and Industries Department has inherited the entire former building of the school. It consists of a complete square of rooms with gymnasium, showers, toilet, and lockers in the center.

The Trades and Industries Department is really made up of departments within a department, since most of the shops have a head instructor and assistant instructors. The school has followed the policy of enlarging its shops and using assistant instructors and substitute instructors as needed. This provision makes possible the necessary elasticity for an adult school where classes vary greatly in size and requirements from time to time. Under the present situation, the school uses its entire trades and industries plant at all times whether the enrollment in any one shop is 15 or 100.

Large plate-glass windows separate the print shop, the press room, and the composing room; the general metal shop and its related classroom; the woodwork and cabinetmaking shops from the finishing room, the glue room, and the shop offices. Ordinary glass separates the metal-shop finishing room from the general metal shop, and the auto-mechanics shops from the auto-mechanics laboratory. Glass partitions save teacher time and effort, and make for an elastic arrangement in expansion and contraction of classes and in the use of equipment. The cabinetmaking instructor whether in the shop, the glue room, the office, or the finishing room, has complete view of his entire class, or of the adjoining department over which he is the head or supervisor.

The machine shop was enlarged to accommodate 20 additional students through the addition of floor space, benches, 5 lathes, a drill press, and a grinder. The enlargement of a shop does not require the duplication of all types of machinery as does an additional shop, for the reason that certain machines in the ordinary classroom are likely to be idle much of the time and their use can be increased if other facilities are enlarged.

The entire building was rewired to improve lighting. Three 100-watt light bulbs have been used for general lighting, and all local lights are strategically placed. The drafting room has totally indirect lighting. Seven hundred fifty-watt bulbs are used and 30 candle-power artificial light is provided for the drafting boards. All shops are equipped with benches where the class can be assembled for shop demonstration, and with storerooms under proper lock-and-key control. Both individual toolrooms and tool panels are used. Related-instruction rooms are close to the shops. The auto-mechanics shop, the cabinet shop, and the woodworking shop have glassed-in offices. The general-metal-shop instructors have desks in the adjoining related classroom. All shops are provided with wash sinks, and individual lockers are either in the shops or immediately adjacent thereto.

On the second floor are two general classrooms separated with an accordian door. These are flexible rooms used for many purposes in both day and evening schools. The accordian door may be opened so that the two rooms may be used as an assembly room for the Trades and Industries or other departments. A general academic classroom adjoins the library room which is supervised directly by the general-subjects instructor. The auto-mechanics shop has several adjoining storerooms and a laboratory equipped with modern machines. High stools enable the student to readily stand or sit at his benchwork. The main shop floor is divided into sections for general repair, greasing, washing, body and fender work, and paint booth.

Electrical laboratory of the auto mechanics department where practical repair work of generators and starters is carried on.

DR. HENRY H. HILL
Assistant Superintendent of Schools in Charge of General Administration, St. Louis, Missouri

Dr. Hill, who was appointed in November, as Assistant Superintendent of Schools in St. Louis, and assumed his new duties on January 1, is directly in charge of personnel, research, and special problems of school administration.

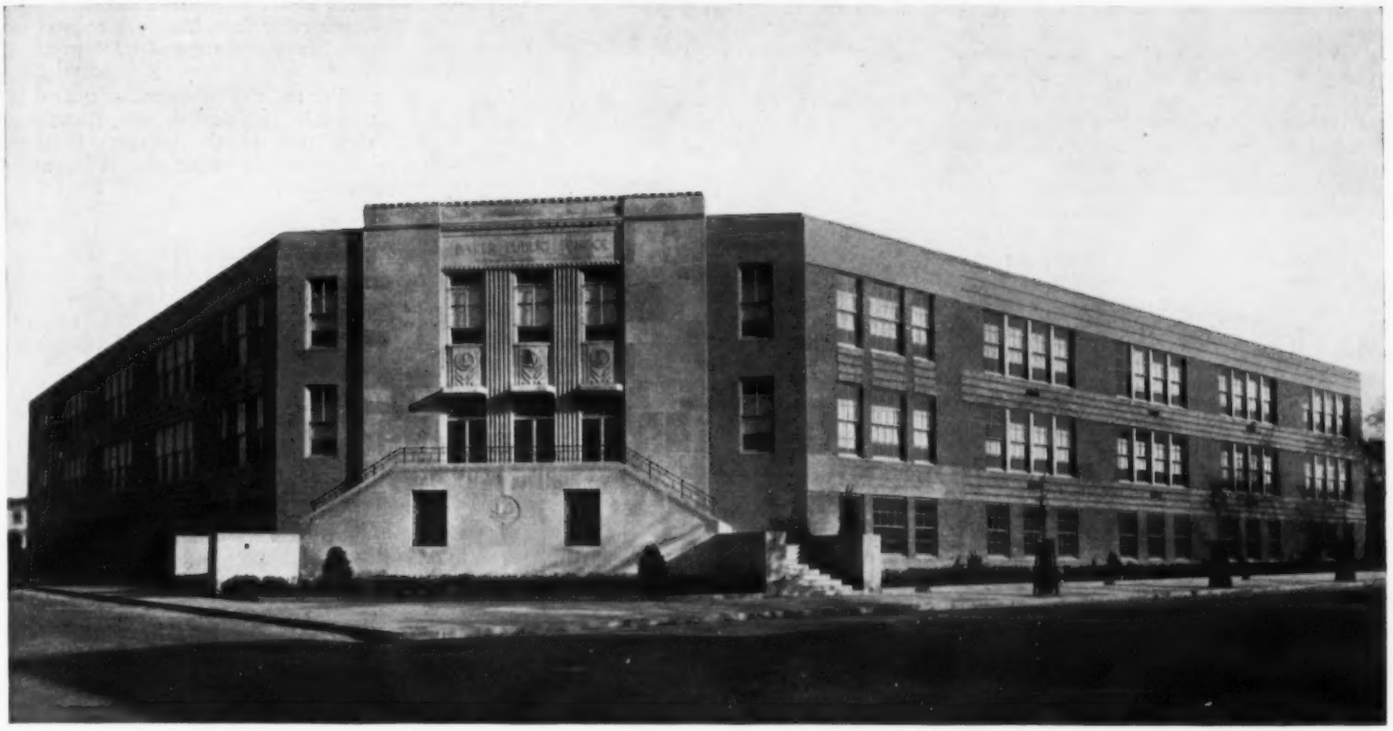
He is a graduate of the University of Virginia, with the degrees of A.B. and M.A., and he also attended Teachers College, Columbia University, which gave him the Ph.D. degree.

After his graduation, Dr. Hill served in various educational positions, as teacher, principal, and superintendent in Arkansas. He is a former state high school supervisor of Arkansas, was a lecturer on the summer school faculty of the University of Alabama, and the Universities of Utah, Duke, and Harvard.

From 1929 to 1930, Dr. Hill was on the staff of the University of Kentucky. In 1930 he was elected superintendent of schools at Lexington, in which position he remained up to the time of his present appointment in St. Louis.

LA CROSSE VOCATIONAL SCHOOL
Construction Details

Exterior, Face brick and cut stone.
Steel windows, *Fenestra, Detroit Steel Products Co.*
Heating boilers, *Kewanee.*
Unit ventilators, *Trane.*
Temperature control, *Johnson.*
Panel boards and electric control, *Holtzer-Cabot.*
Blackboards, *Pittsburgh Plate Glass Co.*
Lockers and Wardrobes, *All-Steel Equipment Co.*
Office furniture and pupils' desks, *National School Equipment Co.*
Printing equipment, *American Type Founders.*
Motion Picture Machines, *Ampro.*



The Baker Elementary School at Richmond, Virginia, would be a dignified addition to the civic buildings of any community.— Marcellus Wright & Son, Architects, Richmond, Virginia.

Richmond Builds Second Baker School

Forbes H. Norris[1]

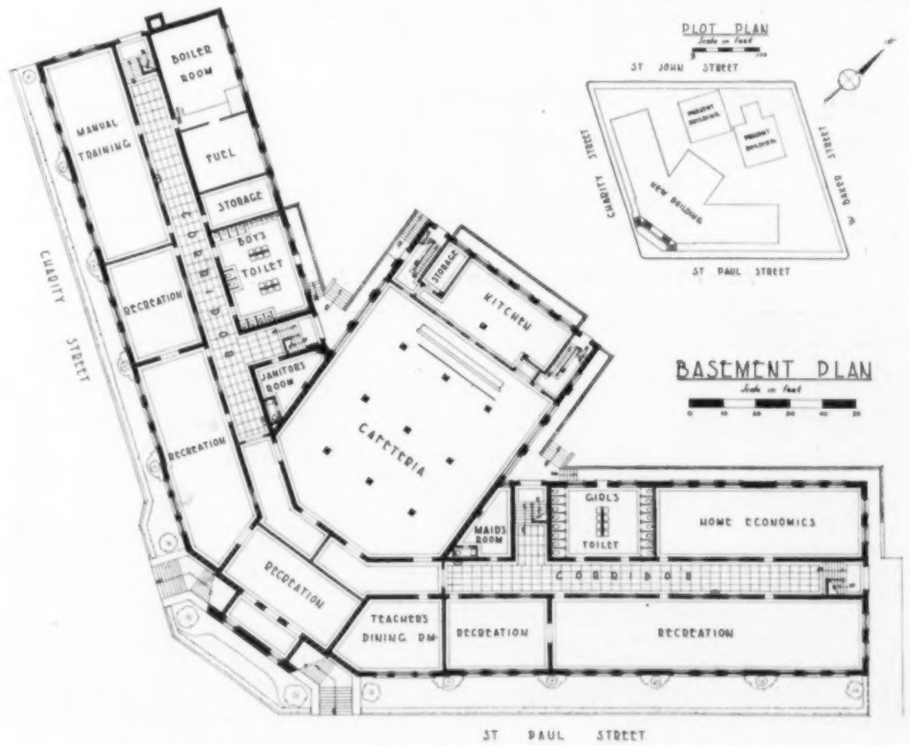
In 1879 the city of Richmond dedicated a Baker Elementary School under Superintendent J. H. Binford. In September, 1940, the city formally opened a new Baker School under another Superintendent J. H. Binford.

In planning this building the school officials and architects consulted representatives from various parts of the system to get ideas of additional features that should go in a modern building. Plenty of light, movable furniture, storage space, provisions for the practical arts on the elementary level, color, and attractiveness were among the items suggested. Unusual care was taken to provide an interior that would be light, easy to clean, and attractive.

Each classroom has the woodwork of birch in a natural finish. There is plenty of wardrobe and storage space. Along each side, by the windows, shelves have been built in. Blackboards are on one side only, and the rest of the space is designed for display and exhibit purposes. Provisions for a reading corner are set up in each room. There are 28 classrooms, giving the building a capacity of approximately 1200 pupils.

A combination gymnasium and auditorium is on the first floor. As an auditorium, it has a seating capacity of 650, along with a fully equipped stage and dressing rooms. It is possible to shut up the rest of the building and make this available for night community meetings. A complete motion-picture unit has been installed for use here or in any of the rooms. With storage rooms at the sides, the folding chairs can be quickly removed and this room converted into a play or physical education room.

In addition to the auditorium, there are facilities on each floor for turning two of the classrooms into one. In this way small groups can be brought together for programs



Basement Plan and Plot Plan, Baker Elementary School, Richmond, Virginia.— Marcellus Wright & Son, Architects, Richmond, Virginia.

[1]Assistant Superintendent of Schools, Richmond, Va.

or instructional plays of interest to a few classes.

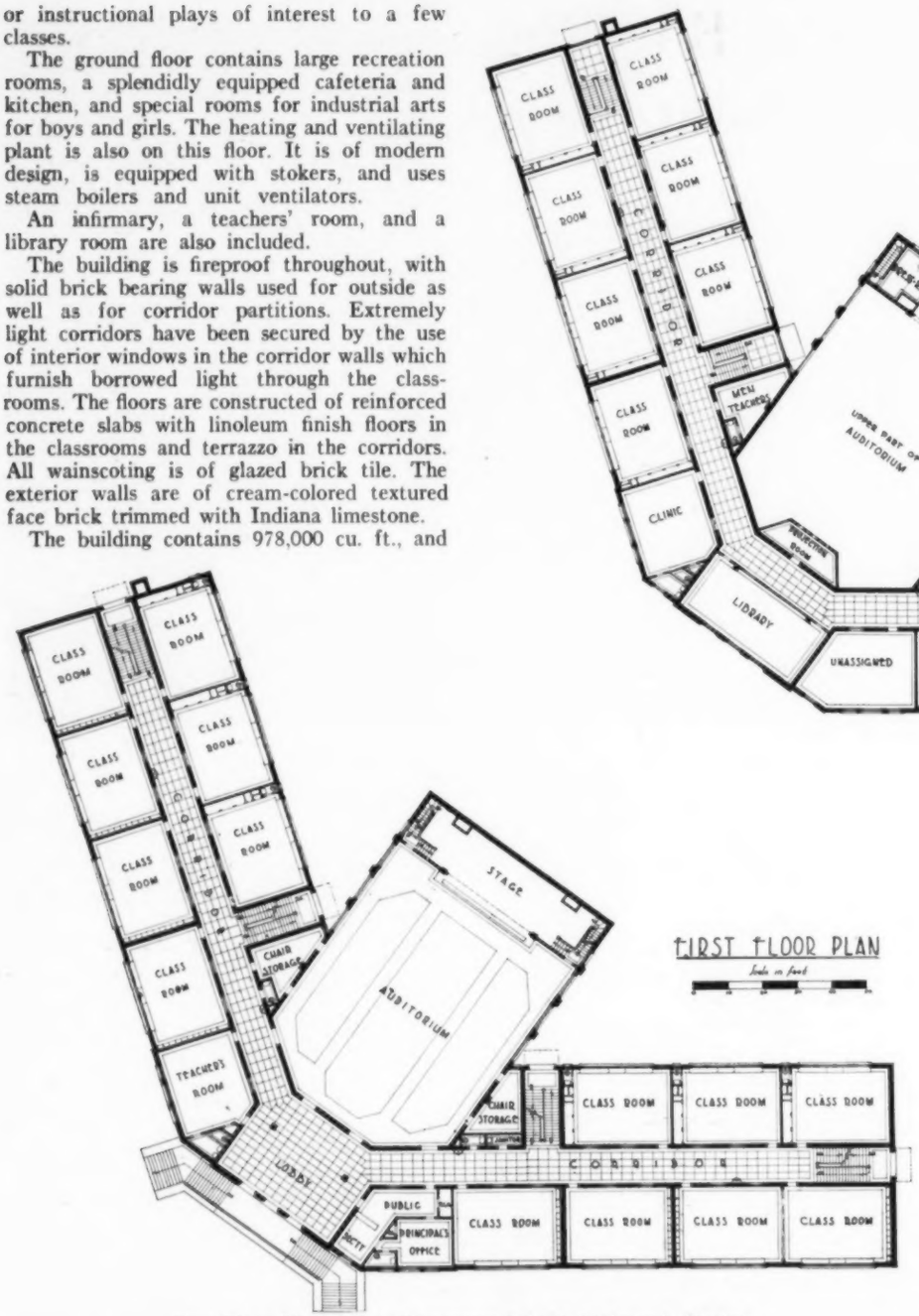
The ground floor contains large recreation rooms, a splendidly equipped cafeteria and kitchen, and special rooms for industrial arts for boys and girls. The heating and ventilating plant is also on this floor. It is of modern design, is equipped with stokers, and uses steam boilers and unit ventilators.

An infirmary, a teachers' room, and a library room are also included.

The building is fireproof throughout, with solid brick bearing walls used for outside as well as for corridor partitions. Extremely light corridors have been secured by the use of interior windows in the corridor walls which furnish borrowed light through the classrooms. The floors are constructed of reinforced concrete slabs with linoleum finish floors in the classrooms and terrazzo in the corridors. All wainscoting is of glazed brick tile. The exterior walls are of cream-colored textured face brick trimmed with Indiana limestone.

The building contains 978,000 cu. ft., and was erected at a cost of $245,000, which was 25 cents per cubic foot. The cost of land and equipment brought the grand total to $334,000.

A complete radio communication system has been installed. This feature was planned as an integral part of the program in music appreciation and in using the radio as an educational device.



First Floor Plan, Baker Elementary School, Richmond, Virginia.

Construction Details

Exterior, Light face brick and limestone.
Windows, wood and steel sash.
Insulation, roofs, *Celotex.*
Floors: corridor and stairs, Terrazzo and Alberene treads; classroom, Maple and Linoleum; auditorium and gymnasium, *Maple.*
Toilet Rooms, *Terrazzo.*
Acoustical Materials, *Sabinite Plaster.*
Boilers, *Erie City.*
Stokers, *Iron Fireman.*
Unit ventilators and heaters, *Herman Nelson.*
Temperature control, *Johnson.*
Program clocks, *International.*
Flush valves, *Sloan Royal.*
Blackboards and bulletin boards, Natural slate and cork.
Wardrobes, wood, *Evans Vanishing Door.*
Office equipment, *Typewriters, Underwood,* adding machines, *Burroughs.*
Auditorium seating, *American Seating Company.*
Home-economics equipment, *E. H. Sheldon Company.*

THE SCHOOL CUSTODIAN

The job of being a successful custodian is one of no small responsibility and one which requires a man with more than average intelligence and personality. Today's custodian must take his place as a leader of local civic activities and must join the ranks in the community battleground of public-school administration.
— Model Custodian.

Left: the auditorium stage is furnished for dramatics and storage space is provided so that the room may be used for play and athletic purposes. Right: the industrial arts room is completely fitted for woodwork, metalwork, and general home mechanics.

Standards of School-Building Construction as Affecting Maintenance

Raymond V. Long, Ph.D.[1]

Maintenance of school buildings is becoming an increasingly complex problem. The wide variety of building materials on the market and the demand for automatically controlled mechanical equipment entering into new school buildings is greatly increasing the cost of maintenance, both in materials involved and the engineering services necessary to keep school plants running smoothly.

In addition to the increasing problems and costs of maintenance, operation of the school plant, which is so closely tied up with maintenance, is also becoming an increasingly difficult problem as well as an increasingly costly one. These two items represent a cost to public education that in most school budgets ranks second in current expenditures to the cost of instruction. This cost represents approximately 15 per cent of the total current expenditure for running the schools. The expenditure of approximately $250,000,000 a year for maintenance and operation of school plants is a sufficiently important item to warrant and demand wider research, and the application of such research findings to means of reducing this heavy item of cost wherever possible or practicable.

The absence of authoritative standards of details for materials and construction entering into school buildings makes it exceedingly difficult and in many cases largely subjective on the part of school authorities and architects in selecting materials and in determining methods of construction in terms of ultimate maintenance costs. This is particularly true in the large number of school plants in towns and rural communities, but it is also true to a large extent in the more complicated school plants in urban communities.

It rarely happens that school authorities develop long-range building programs and purchase in advance sites suitable for school buildings and adaptable to school programs. When the time comes for erecting a school building, the cost of a desirable site is prohibitive, with the usual result that an undesirable site is selected which may be less expensive in first costs but usually calls for heavy maintenance costs of grounds after the building is completed.

The Selection of Meritorius Materials

As soon as a new building program is entered into, the architect and the school authorities are besieged with all sorts of materials and gadgets represented to them with varying degrees of sales argument, with many of these materials having little to offer by way of time-proven merit. It too frequently happens that poor details of planning are developed and materials incorporated in the construction because the architect or the school authorities have not looked far enough ahead to visualize the ultimate cost of such details of design and construction in terms of maintenance costs.

It is no easy task, even for the competent architect and engineer, to select from the wide range of building materials and mechanical equipment that are on the market, those of proven merit from those of spurious value — those that successfully withstand the severe treatment they are subjected to in public schools from those that soon deteriorate and call for expensive maintenance.

"The first cost of a good and serviceable product is forgotten long before it ceases to function and serve well its purpose"; yet when appropriations are cut, or when the building must be increased in size over what was originally contemplated, rather than build well as far as funds permit, we gullibly accept "just as good as" but cheaper substitutes. The total cost of a building would be changed relatively little by using tried and proven materials, and methods of construction, rather than the substitutes which may save a few dollars in first cost, but within a few years after the building is in operation call for expensive maintenance. We all decry this as a shortsighted policy — a penny-wise-and-pound-foolish procedure — and yet we contine to use it in all too many cases. To recite illustrations of the various evidences of shortsightedness in planning, in terms of maintenance costs, would require more time than the patience of this group would permit, but the following items are of such consequential importance in maintenance costs that they deserve continual mention and emphasis to those responsible for planning school buildings and writing specifications for materials and construction.

It is the unusual rather than the accepted practice to think seriously of the site for a school building as affecting maintenance costs. In actual practice, however, maintenance of school grounds of a poorly selected site is a continual heavy cost. Some requirements that should be set up in the selection of the site are: It should have a natural protection against incoming drainage. It should be selected so that it is well drained and dry as possible throughout the year. It should be selected to avoid underground drainage. It should be selected to avoid overflow by rising streams, or where the run-off is so slow that too much time is required for the ground to dry out. It should be selected to avoid the necessity of extensive terracing. The athletic field should be graded so that it drains to both sides and to both ends. There are numerous other points involved in site selection as it affects maintenance, which should be observed and pointed out carefully by the landscape engineer or architect before the site is selected.

Use of Basement Rooms

For some unknown or unsupported reason we have developed the habit of providing basement rooms in school buildings to house a variety of school activities. Such spaces are usually highly unsatisfactory in which to conduct educational programs, as well as expensive in heavy maintenance costs. Some standards that should be followed in connection with basement rooms are, first of all, provide no basement rooms at all, except for the heating plant and fuel storage, but where

(Continued on page 108)

[1]Director of the Division of School Buildings, State Department of Education, Richmond, Va.

The present paper was read before the National Association of Public-School Business Officials, at Detroit, Mich., October 17, 1940.

A view of one of the primary classrooms, Baker Elementary School, Richmond, Virginia. Under the windows are constructed shelves and locker space for the storage of supplies. Wardrobe and book space is at the rear of the room. The classrooms are of the regular size.

Better Daylighting in the Classroom With Proper Fenestration

W. J. Slavin[1]

In the discussion of schoolroom illumination but little has been said in recent years about natural daylighting. The studies of medical authorities have made school boards and school executives generally aware of the dangers of insufficient lighting. It is well known that fully 20 per cent of the children in grades one to six have defective vision, and that by the time they reach the junior and senior years of the high school 45 per cent of the pupils are suffering from impaired vision. These facts lead naturally to a consideration of the necessity of sufficient daylight and correct fenestration of all instructional areas in schools.

Better light for better sight in all the classrooms means primarily the admission of abundant natural light with careful, efficient window planning. This is certainly the most economical and the most healthful means which nature has provided to materially improve visibility and effectively make the job of seeing easier for pupils and teachers.

A New England educator[2] well says: "The wall containing windows should be uninterrupted window space from the ceiling to the window sills at about desk height. I say 'uninterrupted' because the practice of alternating windows and wall sections does not give satifactory lighting. The bands of light and shadow are bad in themselves, and it is not possible by such arrangement to give a room adequate light. The rough rule for window space has been that lighting area should be over one sixth, and had better approximate one quarter of the floor space. Recent studies of lighting, however, seem to show that the maximum light that can be brought into a room is none too much, if it is enough, for the use of children's eyes."

It is paramount that as much of nature's daylight be brought into the schools as the Creator makes it possible for builders and school authorities to do.

What Constitutes Better Daylighting?

A spectral or color quality of light approximating that of daylight is in the opinion of ophthalmologists the most favorable for the range of visual tasks to be performed in schools. This might be expected from the fact that the human eye developed under daylight illumination and much of its daily use is in daylight and even in direct sunshine. Sunshine is valued not only for the light it provides, but also for nonvisible radiation, including the ultraviolet rays, which is of service in maintaining health.

From the standpoint of the conservation of vision and the general efficiency of the schools, the illumination of classrooms, and instructional workrooms must not fall below certain minimum values commonly considered necessary. In corridors, stairways, and passageways to exits, the light intensities are determined primarily by considerations of safety and economy. The ultimate wisdom of this policy is not always clear. Good lighting is an element in producing cheerful and attractive school surroundings and must be taken into account for maintaining the school morale.[3]

Ophthalmologists and educational psychologists have as yet produced no comprehensive studies of schoolroom lighting upon which to base satisfactory optimum or even minimum standards of school lighting. The following illumination values are urged by engineers and are based no doubt upon the typically American principle of dealing generously with children and of making schools conform to the generally accepted practice of excellent lighting now so common in offices, stores, and other establishments where light is used to attract and please people. Properly planned fenestration of schoolrooms will more than meet the standards set forth under the normal conditions of properly located and oriented school buildings:

Recommended Practice of School Lighting

Location	*Min. Operating Foot-candles General Illumination*
Classrooms — on desks and blackboards; study halls, lecture rooms, libraries on desks and tables	15
Offices — on desks	15
Sewing rooms, drafting rooms, art rooms, and other rooms where fine detail work is to be done — on the work	25
Shops, laboratories — on the work	15
Gymnasiums — main exercising floor, wrestling, playrooms, swimming pools, basketball, handball, boxing	15
Auditoriums, assembly rooms, cafeterias, and other similar rooms not used for study	6
Locker rooms, corridors, stairs, passageways, toilets, and all indoor areas traversed by students	4
Sight-saving classrooms — on desks and blackboards	30

It may not be amiss to restate here the fundamental practices of good natural lighting as these apply to schoolrooms. For economy these may be summarized under (*a*) window location, (*b*) area, (*c*) height, (*d*) glass at ceiling, (*e*) control of direct sunlight.

Aspects of Window Lighting

A basic standard in schoolhouse planning requires that classrooms be 12 ft. in height and that the width of unilaterally lighted rooms be not more than twice the height.[4] The actual amount of glass area is 25 per cent of the floor area.

Window Location. "Most children write with the right hand, hence it is considered desirable to place the windows to the left of the pupil to prevent shadows on the work when writing. Windows should rarely be placed at the rear, and never at the right or in front of the pupils. To secure good illumination at the rear of the room, the windows should be placed as near the rear wall as practicable. At the front end of the room, the windows should preferably stop at about the line of the front row of desks, or between 4 and 8 ft. from the front wall."[5]

Window Area. "Mullions and piers between windows should be narrow to prevent the casting of shadows. To secure the maximum average illumination over the working surfaces, the window-glass area should be as large as structural limitations will permit. Experience indicates that the glass area should be not less than 18 per cent of the floor area for glass starting 3 ft. about the floor; or 15 per cent for glass starting 4 ft. above the floor; but the best practice is to exceed this minimum value, particularly if a portion of the sky is obstructed by adjacent buildings. It should be noted that the reference is to the

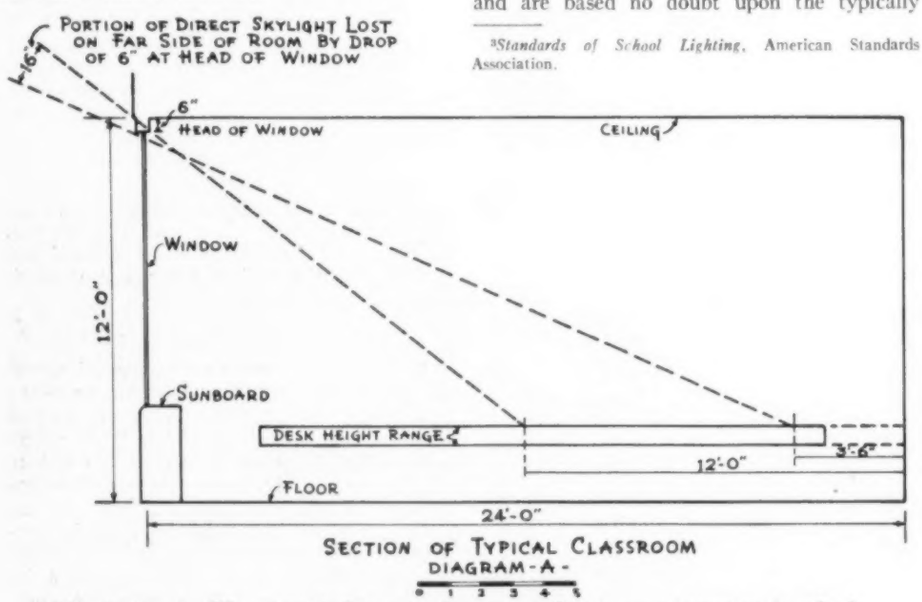


Illustration A. The exposed glass area closest to ceiling is most important in schoolroom lighting. A loss of six inches at ceiling causes a loss of sixteen degrees of direct skylight.

[1]Manager of Architectural Sales Department, Detroit Steel Products Co., Detroit, Mich.

[2]Eugene Randolph Smith, Headmaster, Beaver Country Day School, Chestnut Hill, Mass.

[3]*Standards of School Lighting*, American Standards Association.

[4]Sec. 4.2, Standards, National Council on Schoolhouse Construction, 1939.

[5]"American Recommended Practice of School Lighting," approved Feb. 17, 1938, by American Standards Association.

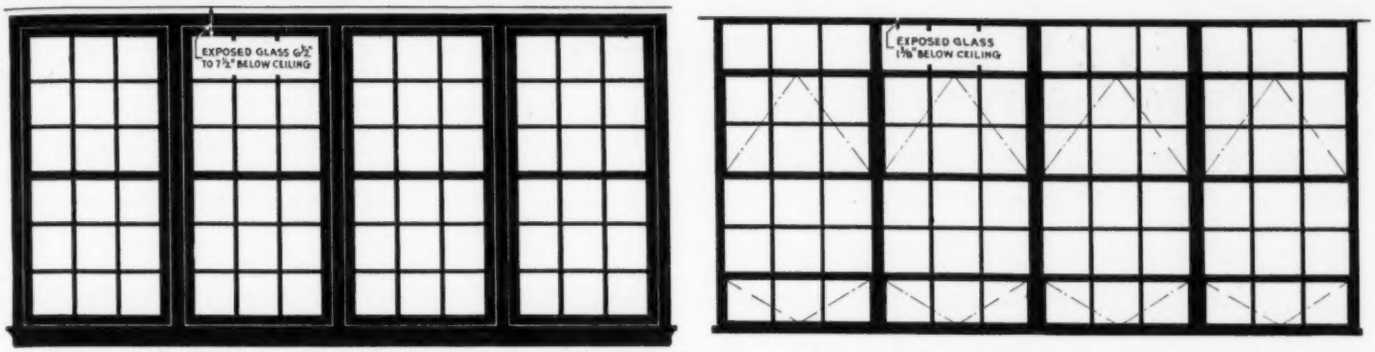


Illustration B. Sketch at left shows loss of light through heavy wood mullions and wood muntins. Sketch at right shows greatly increased glass area due to use of steel windows.

actual glass area, not to the total opening of the window frame."[5]

Window Height. "Since it is desirable that the variation in illumination between the two sides of the room be as small as possible, the top of the glass should be as near the ceiling as possible. This factor is most important in securing even distribution in the average room. An empirical rule, which has proved satisfactory, is that the top of the glass shall extend to a height above the floor, equal to at least one half of the room width. With the same area, higher values of natural illumination should be obtained by adding height at the top rather than width to the windows."[5]

Glass at Ceiling. Many states require that the soffit of the window head should not be more than 6 in. below the ceiling line. This is essential in order to assure as much light as possible reaching the side of the room opposite windows. Even this 6-in. space will reduce considerably the amount of skylight entering the room.

In Diagram *A*, an indication of the amount of skylight is given. In this case 16 deg. of sky are shut out by a 6-in. trim. The actual amount of illumination lost will, of course, be dependent upon the brightness of the sky. This particular 16 deg. is in the brightest part of the sky and is, therefore, of considerable importance. If construction permits, windows should extend to the ceiling line. Preferably the exposed glass should reach within 1 or 2 in. of the ceiling. (See Illustration *A*.)

Window Shades. "Since the natural illumination on the far side of the room is dependent on the light that comes from the top of the window, shades should not be hung at the top of the windows. One of the several methods used to avoid excessive variation of light over the working surfaces is the placement of two shades mounted on separate rollers. These may be arranged with both rollers at the middle of the window, one operating upward and the other downward, or there may be one roller at the middle, and one at the bottom, both operating upward."[5]

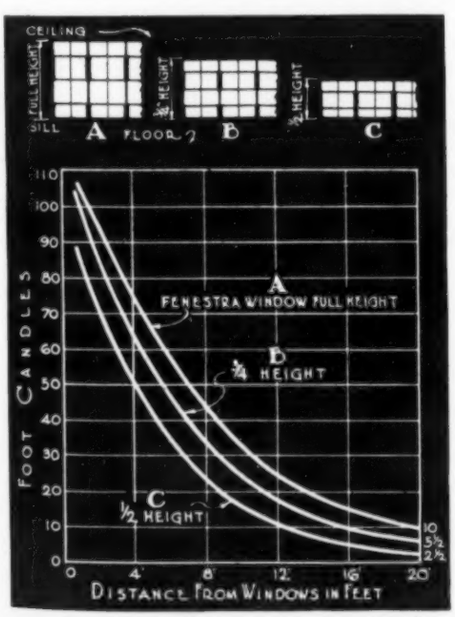


Illustration C. The use of full height steel windows increases light in classrooms. A reduction of twenty-five per cent in upper window results in day-lighting loss at back of room of forty-five per cent.

How Can Better Daylighting Be Maintained

The most serious detriment to proper daylighting is the dirt which collects on the windows. The primary purpose of a school window installation is to admit daylight in sufficient quantities to permit pupils and teachers to see safely, accurately, comfortably, easily, and quickly. If the windows lose their ability to do this, through the collection of dirt, then everybody suffers.

The human eye is a poor meter for measuring the amount of light. Frequently, then, the day-to-day collection of dirt goes on unnoticed until such time as the light is seriously diminished, and seeing becomes a heavy task. Provision should be made to keep school windows relatively clean, by the adoption of a definite washing schedule. In the winter months, when daylight values are reduced, windows should be cleaned at shorter intervals.

The Factor of Ventilation

The most salient value of window lighting — *daylight* — has been discussed here because most of human thoughts and actions are controlled and dictated by the sense of sight, and by far the greatest part of children's learning is gained through the eyes. However, another paramount factor is nature's gift of fresh air, which again can be efficiently and economically attained with careful window planning.

A leading medical authority finds windows an essential factor in ventilation. "Air freshness," he writes, "as perceived by the skin is a function of temperature, air movement variability, and humidity. The agreeable sensation of freshness is ascribed to a stimulating action of the cutaneous sensory nerve by mild air currents within the threshold of perceptibility. A uniform air movement is regarded as monotonous and less stimulating than oscillating air currents below and above the threshold velocity. Here may lie, in part, the explanation for the preference of window ventilation over the mechanical systems, with temperature fluctations closely related."[6]

Ventilation should be arranged to protect the health of school children by eliminating drafts with precision-made windows, of superior weathering contacts, which are given the best infiltration ratings under the standards of the American Society of Heating and Ventilating Engineers.

The ventilators should be designed for at least 50 per cent ventilation and be so arranged as to prevent direct drafts when opened, and to permit all glass on both sides to be cleaned easily, safely, and economically from the inside of the room.

Ventilators of each window unit should be precision fitted for weather-tightness by the manufacturer, and this tight fit should be permanent, free of warping, swelling, or

Concluded on page 109)

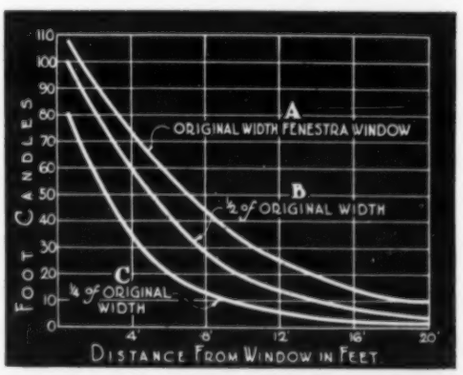


Illustration D. The effect of reducing the width of windows results in the greatest loss at the inside row of desks.

[5]C. P. Yaglou, *Journal of the American Medical Association*, May 15, 1937.

THE AMERICAN
School Board Journal
Edited by Wm. Geo. Bruce and Wm. C. Bruce

Better School Buildings in 1941

THE completion of the PWA projects during the summer of 1940 brought to a close a period of activity in the planning and construction of American school buildings that represents a vast achievement for the betterment of local schools. While it cannot be said that PWA greatly influenced major changes in the planning and instructional equipment of school buildings, it did call sharp attention to the need for a number of reforms, particularly in the financing of local school construction programs and in the location of school buildings within properly planned attendance areas. Above all, it crystallized for a long time the quality of the general construction of school buildings, particularly from the standpoint of safety to life, permanent mechanical equipment, and the economical use of suitable materials.

Whatever is said in criticism of federal control over local school units due to federal aid, the PWA and in a lesser way the WPA have demonstrated that the type of influence which federal administrators and engineers injected into the local school-building situation have been enormously beneficial and have never caused appreciable injury to local initiative and local control. In fact, state school authorities have found distinct values to inhere in the federal activities, particularly in the direction of insuring better specifications, fair bidding conditions, and competent inspection of work completed.

The discontinuance of PWA is a vast loss to the development of school-plant extensions and replacements which are still necessary for a well-balanced and thoroughly progressive educational system, particularly in states and communities where because of economic conditions the schools are most backward. Unless ways and means can be found for financing a nationwide school-building construction program of three and one-half to four hundred million dollars annually, the school-plant facilities will shortly be in worse condition than they were in the early twenties as a result of the world war stoppage of construction. The idea of building up a shortage of schoolhouses during periods of industrial activity and economic prosperity in order to provide public works for an anticipated depression may have economic and political values in the minds of certain public officials, but the policy is fatal for the maintenance of a decent system of education in which equal educational opportunities are available.

It will be a matter of permanent loss to the country and its educational system if school-building construction is seriously hampered during this coming year of preparation for national defense. In the scheme of important public undertakings, education must take a leading rank, and the maintenance of a thoroughly adequate school plant must be considered an essential element to be promoted. Perhaps much of the immediate activity must be directed to buildings for vocational education and for adult education. It seems entirely essential that physical education shall not be overlooked in the immediate future and that for obvious reasons gymnasiums and other facilities for building up a vigorous, physically strong generation are needed if the projected programs for universal military training are to be achieved.

During the past decade, technical details of school plans have been changed particularly in high schools. Surveys of older school buildings, especially in the large cities, have demonstrated the wastefulness of instructional areas planned as recently as 10 or 15 years ago. Some of the auditoriums, gymnasiums, libraries, and shops are no longer well suited to present-day uses. The auditoriums need no longer seat all the children at one time. Except in situations when the room serves general community purposes it is held that the auditorium should not seat more than three fourths of the school enrollment and certainly not more than 800 or 1000 children. The public-address system has effectively overcome the need of overlarge auditoriums. On the other hand, recent improvements in teaching methods and in pupil activities have required enlargement or radical rearrangement of some instructional areas. There has been a growing appreciation of the need for integrating the departments of schools and vastly more intelligent attention will be necessary for this problem as the educational programs continue to grow and better methods are evolved.

In many older school buildings elements of plan which were considered unsuited to children have been found useful in providing for the newer adult uses. As Professor Engelhardt has been pointing out, the adult and community use of buildings for citizenship training, for vocational refresher courses, and for a great variety of cultural activities implies wise consideration of flexibility in planning. It is absolutely wasteful to consider the daytime instruction of children as the end-all of school buildings.

In a recent campaign for funds to be used in a vocational school building program, the Cincinnati board of education gave expression to two policies worthy of wide acceptance. The board made clear that it favored the erection of multiple-vocational field buildings which would serve the community, by training young men and women for a number of locally important occupations. The proposed buildings should be planned with considerable flexibility so that the courses offered might be adapted to the needs of the time as they arise and change. The board declared itself against the unit type of building so closely planned that it will become obsolete after a number of years when conditions in the teaching of a given occupation change.

As a second major policy the board made clear its determination not to erect monumental structures, but to limit its designs to plain, dignified classroom units and factory-type shops and work areas.

In these new situations when education must compete more sharply than ever for the tax dollar, it will be wise indeed for the school boards to study their building designs and plans for completely adequate and safe structures, and for genuine economy.

Federal Teachers' Pensions?

THE proposed extension of federal social security to local public employees threatens the many fine state and local systems of old-age pensions for teachers and professional school executives which have been built up during

the past four decades. While Senator Wagner in his latest amendment to the existing law, seeks to exempt the existing teacher, police, and other pension systems supported by public employees, the tenor of the proposed legislation as a whole is unfavorable to the extension of the present strong type of actuarial pension system to those states and to those teachers who do not yet have the benefits of such plans.

The entire situation is a complicated one and cannot be corrected ultimately without the cooperation of the school boards, the teachers' organizations, and other agencies interested in social security. It seems clear that old-age pensions must ultimately be made available to all teachers in all communities. The nonteaching employees of the school boards must be benefited by such plans on an equal basis with other public servants engaged in occupations requiring training, skills, and services of similar quality and importance.

For the sake of uniformity and easy administration, various interested nonschool groups seem to favor the revised federal plans without regard to the fact that these will ultimately reduce the protection and the benefits of teachers, built up as they have been upon sound principles of protecting the adequate deferred compensation of an important public-service profession. Any solution which is found must not sacrifice the present pension systems of the teacher groups.

School-Building Insurance Programs

OF THE achievements of recent school-business management, the recasting of city programs of insurance against fire and windstorm losses is one of the most commendable and permanently valuable. It has become the accepted practice for school boards to insist that all insurance be written for five-year periods, that the policies be staggered in order to equalize the annual outlays, that the forms be standardized for maximum protection under the most advantageous coinsurance plan, that all legitimate local agencies share fairly in the writing of the policies, and finally, that all payments come due on one selected day.

The well-considered insurance program involves an annual inspection of all school properties, followed by systematic repairs for the elimination of all conditions that result in premium penalties. In the selection of materials for the construction and equipment of buildings the possible effect upon the insurance is a major point of consideration. Finally, the school housekeeping policies are reconsidered periodically and the insurance angle is an important element in making decisions.

In two aspects of their insurance programs school boards are not altogether efficient. The original construction of school buildings is not always happy from the standpoint of fire safety. In the long run perhaps, many economies in building construction are lost through the high cost of insurance and upkeep. A second aspect of failure arises from the insistence of many school boards upon the purchase of their policies from the old stock-insurance companies. This sticking to precedent overlooks the great economies that can be effected by the purchase of well-considered contracts in the well-established mutual companies.

In a number of states the boards have not availed themselves of the opportunity for determining the relative costs of insurance and the losses in school property so that some of the rates are still too high for the relatively favorable hazards in school buildings.

Unquestionably, school-business executives who have been responsible for all of the progress made during the past 10 or 15 years, will find ways and means of solving the problems that still exist. In their solution it will be necessary for the school boards to show considerable ability to resist certain types of pressure.

School Boards and Other Public Offices

OCCASIONALLY, the question arises whether a citizen holding public office, federal, state, or local, may also hold a membership in a board of education. Within the year several interesting cases have arisen.

For instance, a case came up some months back where the legality of a member of a board of education in a western state was challenged because he also held the job of letter carrier. In Minnesota, it developed that a member of a board of education was also a town supervisor. In a southern city, a school-board member was ousted from office because he was a member of the local police department.

Legal opinion here agrees that no one can hold two public offices between which conflicting interests may arise. In the Minnesota case, where a school-board member served also as town supervisor, the attorney general of the state held: "We can conceive of a situation where antagonism might result from an attempt on the part of one person to discharge the duties of two offices." He cited, for example, the improvement of town roads, the letting of contracts for snow removal, etc.

While the laws bearing on the subject do not specifically mention the kind of public offices that may be in conflict with a school-board membership, or vice versa, they are indicative of the fact that public policy does not sanction dual office holding.

Being Too Patriotic

THE cartoon in the December issue of the AMERICAN SCHOOL BOARD JOURNAL has met with objections. At the editor's request, the artist with patriotic zeal, opposed the un-American 'isms which had found expression in American public and private life. Unfortunately, the argument was unintentionally misdirected against the course of studies pursued in the schools rather than the individuals who have been seeking entry into the schools. Thus, the editor slipped. The mistake is admitted and assurance is given that it will not be repeated. To the schoolmen who called attention to the error, our thanks!

THE control of traffic around school buildings by school janitors, teachers, and pupil safety patrols presents an interesting legal question in most cities. It is the opinion of several attorney generals that the boards of education have no jurisdiction over pupils after they leave the school grounds.

Consequently, teachers and principals who assign janitors, teachers, and pupils to traffic duty outside the school grounds are assuming a personal responsibility that may be troublesome in case of an accident. The only complete solution of the problem of pupil traffic is to have janitors sworn in as extra police for traffic duty only.

The Continuous Building Survey Experience of the Chicago High Schools

John W. Bell[1]

February, 1937, was the beginning of a new deal for the old or relatively long-established high schools of Chicago. Prior to that date successive boards of education had felt that they were working miracles if they were able to provide enough new high school buildings and additional seats to permit the secondary schools to accommodate, even with days extended from 8 a.m. to 5 p.m., the ever increasing hordes of young people who were demanding seats in them. But in February, 1937, upon the recommendation of Superintendent Johnson, the board became committed to the following revolutionary policies: (1) All conditions in the high school plants which have been the objects of criticism by visiting committees representing the University of Illinois, the State Department of Public Instruction, and the North Central Association, will be promptly investigated and corrected where the need is well established. (2) Not only will conditions which have resulted in criticism be corrected, but any further reasonable needs of the high schools in the way of plant facilities, alterations, or equipment for carrying on a thorough-going and modern program of secondary education, will be provided for.

A survey committee appointed by Superintendent Johnson proceeded immediately to determine the most urgent needs and to set up a schedule of rehabilitation and renovation for the high schools.

Personnel and Procedures of the Committee

The personnel of the Continuous High School Survey Committee consisted of: the assistant superintendent of high schools, the four district superintendents in charge of high schools, the director of building survey and his assistant, a representative of the official school architect, a representative of the chief engineer of the school system, and the director of the bureau of educational equipment and supplies.

The chairman of the committee asked each of the four district superintendents in charge of high schools to select for immediate survey the two high schools of his district in most urgent need of attention. A schedule was then set up for surveying the eight high schools under study, a full day being allotted for each. Thursdays, over a period of eight weeks, were reserved by members of the committee for the series of visits. The group met at 9 a.m. in the office of the principal of the high school scheduled for visitation to consider his recommendations for the rehabilitation of his building. Principals were requested to draw up in the following form for consideration by the committee a schedule of their needs: (1) criticisms by the visiting committee representing the accrediting agencies, and the proposals of the principal for eliminating or invalidating the criticisms; (2) further proposals of the principal for the improvement of his building facilities. To assist them in drawing up their recommendations, the principals were advised to invite the directors of music, art, physical education, industrial arts, home arts, science, commercial subjects, and so on, to visit their high schools in advance of the schedule visit by the survey committee, for the purpose of evaluating the physical facilities and equipment for their respective departments and of recommending measures for the correction of deficiencies or unsatisfactory conditions.

As members of the committee arrived at a high school scheduled for visitation they gathered around a conference table in the office of the principal and carefully considered his recommendations item by item. The engineer-custodian of the building sat in on the deliberations, contributing advice and suggestions. After discussing the plan for rehabilitation as a whole, the committee went as a body to see the various parts of the building for which alterations or additions were proposed, following an itinerary prepared by the principal. The pooling of judgments as to the most satisfactory procedures for effecting improvements often resulted in the amelioration of original proposals. A rational discussion of all problems tended to break down prejudices and preconceived notions on the part of individual members of the group and to effect a meeting of the minds. It was conceded that the committee as a whole should be in agreement with reference to individual items before they were included in the survey report.

The survey reports on the Schurz High School are typical of those prepared for the other eight high schools to which the attention of the committee was first directed:

Survey Reports on the Schurz High School

May 5, 1937

1. Redecorate building.
2. Rehabilitate old assembly hall for library use.
3. Equip old assembly hall for library use.
4. Convert present library, room 131, into social laboratory.
5. Equip room 120 for evening school office.
6. Rehabilitate present office.
7. Resurface asphalt floor in corridors.
8. Re-equip room 315 for household arts.
9. Replace old cooking equipment with 4-pupil tables in room 314 — living room.
10. Provide locker, shower, and toilet facilities in girls' gymnasium on fifth floor.
11. Rehabilitate locker and shower room adjacent to girls' gymnasium, 207.
12. Install sterilizer and dryers for girls' swim suits.
13. Provide more adequate shower facilities for girls adjacent to swimming pool.
14. Provide hair dryers in girls' locker room adjacent to swimming pool.
15. Rehabilitate locker room in boys' gymnasium, 125.
16. Replace all old toilet fixtures.
17. Install general science demonstration tables with water and gas, rooms 377, 309, 334, 234, 335.
18. Install dark shades in rooms 312, 355, 334, 234, 119, 221.
19. Install electric wall outlets in rooms 309 and 302.
20. Remove partitions between rooms 316 and 363 in order to provide a lecture room to serve the two physical-science laboratories.
21. Provide 22 tablet-arm chairs for the new lecture room.
22. Provide more adequate lighting in rooms 204, 205, 206, 311, 312, 315, 373, 377, and 378.
22A. Cut door for gymnasium balcony wall to gymnasium office.
22B. Build a partition in room 119 to provide a lecture room to serve two biology laboratories.
23. Resurface floor in machine shop.
24. Provide acoustical correction material on ceiling of band room, 333.
25. Provide two industrial-arts laboratories.
26. Raise mechanical-drawing benches in 5 rooms.
27. Convert rooms 311, 314, and 315 into a home-arts laboratory suite.
28. Old vault in administration suite to be vacated by day school and put at the disposal of the evening school.
29. Convert present foundry shop into R.O.T.C. quarters.
30. Provide bulletin boards in all classrooms and laboratories.
31. Install new master clock and repair bell system.
32. Provide 100 folding chairs for band room.
33. Install water and gas on demonstration table in room 106.
34. Install 40 of the new-type art desks in rooms 419 and 425.
35. Construct workbench in forge shop, room 117.
36. Provide vestibule doors between band room and corridor.
37. Provide library for evening school.

October 19, 1939.

The 1937 survey report on the Schurz High School includes 37 items, 17 of which have been completed. Five of the items were deleted with the approval of the survey committee. [There follows a summary of the status of the items still incomplete.]

New Items

38. Extend shower and locker facilities in boys' large gymnasium including area of west balcony.
39. Move typing equipment from room 313 to 203 when 313 is converted into home-arts laboratory.
40. Provide partition in present cafeteria to provide teachers' lunchroom.
41. Provide blackboard in room 114. Connect water and drain to demonstration table.
42. Replace wood lockers with metal lockers in north and south corridor first floor.
43. Provide 200 tablet-arm chairs or pedestal seats for room 333.
44. The fifth-floor room to be used for band and orchestra when rehabilitation of gymnasium facilities is completed.

Practically all the items included in the foregoing report have now been completed. As a

(Concluded on page 68)

[1]District Superintendent in Charge of North Side High Schools, Chicago, Ill.

TRU·STOP *Emergency* BRAKES

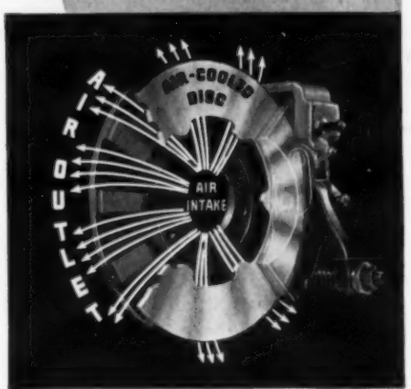
make the school bus Safer

Be sure your School Bus is safe. TRU·STOP Emergency BRAKES on your bus will assure you of positive stops from every speed—every time.

Your driver can use TRU·STOP Service Brakes on long grades. They help dissipate the heat of braking. Thus they increase brake lining life.

TRU·STOP Emergency BRAKES with the Ventilated Disc provide sure control of your bus parked on grades.

Get new safety and economy by having **TRU·STOP Emergency BRAKES** on your new bus. Most likely the manufacturers install it as optional equipment. If they don't, write us and we will supply an assembly you can install easily in your local service shop.



THE TRU·STOP "VENTILATED" DISC MAKES TRU·STOP EMERGENCY BRAKES SERVE BETTER AND LAST LONGER

AMERICAN CABLE DIVISION

12-252 General Motors Bldg., Detroit, Mich. • San Francisco: 630 Third St.

In Business for Your Safety

ACCO

AMERICAN CHAIN & CABLE COMPANY, Inc.

(Concluded from page 66)

result the efficiency of this high school has been immeasurably increased.

Further Survey Schedules

Each successive semester since this first round of surveys was made, two additional high schools have been visited by the committee. Much the same procedure has been consistently followed. Continuous scheduling of eight high schools per semester, since the second semester of the scholastic year 1936–37, has resulted in a thorough canvass of the needs of each of the 40 high schools of the city. Since February, 1939, the committee has been making return visits to high schools already surveyed. Consequently most of the major needs have now been provided for. On these return visits the procedure of the committee involves the following steps: (1) consideration of the status of the items included in the report of the previous survey; (2) inspection of items completed or in process of completion; (3) desirable modifications in the items still scheduled for attention; (4) comments of the visiting committees from the accrediting agencies on their most recent visit to the high school, and necessary steps for complying with the suggestions of these agencies if their proposals meet with the approval of members of the survey committee; and, (5) needs that have developed since the last visit of the survey committee.

Changes in educational policies, the addition of new courses to the high school offering, and the introduction of new services often necessitate reallocation of building space and the provision of specially designed accommodations. If building facilities are to be well adapted to a developing educational program, they must continuously be restudied in the light of changes.

Values of Continuous Surveys

Five important values have been inherent in the procedure of the survey committee: (1) This cooperative undertaking has resulted in better understanding between the business and education departments. (2) Standard plans acceptable to school staffs have been developed for such new departures as home-arts laboratories; industrial-arts laboratories; the new adjustment, guidance, and placement services. (3) Careful consideration of building problems on the part of all those associated with the survey committee has provided valuable in-service training in this field. (4) Substantial agreement has been achieved on many educational issues. (5) Assurance that the survey committee would appear at each high school building once in two years for a fair and impartial hearing of the recommendations of principals has greatly reduced the activities of pressure groups who demand consideration of their requests regardless of the relationship of these to the needs of the school system as a whole.

Accomplishments of the Survey

Thanks to the consistent provision in the budget of a substantial fund for rehabilitation since 1937, the recommendations of the survey committee have been put into effect with little delay. A partial list of accomplishments follows:

1. The libraries in most of the high schools have been doubled or tripled in size, and their book collections have been modernized and correspondingly increased.

2. Adequate quarters for the R.O.T.C. have been provided in most of the 40 high schools of the city, including an office for the sergeant, safe and sanitary storage space for Federal Government properties, a drill hall, and a lecture room.

3. Two rooms have been allocated in each high school to the guidance and adjustment service: one to serve as an office for the adjustment teacher, the placement counselor, the WPA clerks, the truant officer, itinerary guidance workers from the central office, and as a depository for the cumulative student records; the other equipped with 12 tables and 24 chairs to serve as a conference room for the use of all teachers during the daily period which they devote to counseling individual students.

4. In most high schools, home-arts and industrial-arts laboratories have been provided in sufficient number to care for all ninth-year students who wish to take technical work. As a result, ninth-year pupils have had an opportunity to explore this technical field before being forced to make a decision as to whether or not they wish to travel to a relatively distant technical high school for a three-year technical course.

5. Lunchrooms have been modernized and their capacities increased in many instances. Suitable lunchrooms have been provided in a number of high school branch buildings where the former facilities were entirely inadequate.

6. Administrative suites have been increased in size and improved in arrangement. Privacy has been provided for principals, assistant principals, and certain other administrative aids in case the office layout had been such that the principal shared a large room with a number of his assistants.

7. Steps have been taken to reduce excess noises and reverberations in band, orchestra, and choral rooms. Many of the ceilings of gymnasiums, swimming pools, auditoriums, and lunchrooms have already been sound treated. Members of the committee are agreed that all rooms of these four types should be so treated, and those needing acoustical materials will be scheduled for attention in the order named.

8. Considerable progress has been made toward providing adequate study halls in order to eliminate the necessity for using the auditorium for study purposes. The committee considers this to be the major problem before it at present.

9. Locker and shower facilities for the department of physical education have been provided in many branch buildings, and in many of the older main buildings where such facilities were inadequate.

10. Thousands of old wooden corridor lockers have been replaced with modern steel lockers.

11. As health has become a required subject for every Chicago high school pupil, one period per week every semester that he attends, suitable rooms have been provided and equipped for the teaching of this subject.

12. Many old physics and chemistry laboratories have been completely overhauled and re-equipped. In many cases the locations of these laboratories have been changed for the purpose of increasing their efficiency and giving them more room.

13. Zoology and botany laboratories have been converted in many cases into modern biology laboratories. Often these have been relocated in order that they might have a southern exposure, making it possible for the teachers to develop a large and healthy collection of plant life. Workrooms for students wishing to carry on long-term experiments have been provided in conjunction with a number of laboratories, and more adequate storage space for science equipment has been made available.

14. In a number of high schools general science had been taught in a standard classroom ever since the subject was introduced into the curriculum. Dozens of general-science rooms in the high schools have been equipped with demonstration tables properly provided with running water and gas. Adequate storage space for supplies has been provided in these rooms, and the general-science departments have been equipped with trunks in which all needed materials are packed for the demonstrations to be performed in connection with each of the units of the course.

15. A room has been set aside in almost every high school to serve as a social laboratory in which clubs, committees, PTA's and other such groups may meet in a proper atmosphere.

16. To many commercial departments has been added a clerical practice room equipped with a limited number of many of the various types of office-machine and filing equipment in order that students may have a well-rounded office experience.

17. Obsolete equipment in many home-economics laboratories and shops has been replaced by up-to-date equipment.

18. Old and insanitary corridor floors in several buildings have been replaced.

19. Attention to landscaping of the grounds has remarkably improved the appearance of many of the formerly unattractive sites.

20. Thousands of new lighting fixtures have been installed. Interior decorators have further improved the lighting by using lighter colors on ceilings and walls.

21. Every high school building has been decorated inside, and the woodwork and metal trim on the outside of most buildings have been painted within the past three years.

22. Fireproof and burglarproof record vaults have been provided in all cases where they were lacking, and the vaults have been increased in size in buildings where they were inadequate.

23. Fireproof vaults for the storage of chemicals have been provided in all high school buildings.

You'd Call This a Queer Class in Graphic Arts

MONROE EDUCATOR

A regular Monroe Adding-Calculator made for schools and sold to schools only, at a price to fit any budget. For information about the Educator and Monroe Office Practice Courses, get in touch with the nearest Monroe office or write to the Educational Department.

Using penny pencils and wrapping paper for a graphic arts class just isn't done. Schools use easels, desks, costly paints and crayons, modeling clay, and all the necessary material. Can you imagine a school that would think of conducting a graphic arts class without them?

Yet even today, some schools try to teach Office Practice without using calculating machines. It's very much like Hamlet without Hamlet.

The students are going out into machine equipped offices — probably Monroe equipped; for Monroes are by far the most widely used calculating machines throughout business.

The schools that use Monroes find that they are so simple that the student quickly masters Monroe operation, and goes on from there to a thorough training in business mathematics.

MONROE

CALCULATING MACHINE COMPANY, INC.

***Educational Department:* ORANGE, NEW JERSEY**

—a FIRST *consideration when planning expansion . . . . . .*

Topping the list of essentials for any new school building, and for remodeling or expansion of present school facilities, is standardized electrical signaling equipment planned and produced by Holtzer-Cabot. For many years, Holtzer-Cabot has led the field in manufacturing quality equipment such as:

Fire Detecting Systems	Program Clock Systems
Fire Alarm Systems	Program Bell Systems
Telephone Systems	Laboratory Control Panels

Sound Distribution Systems

School administrators, educational authorities, architects, and building contractors are invited to send for literature without obligation.

America's most modern schools turn to Holtzer-Cabot for aid in planning and administration.

The Holtzer-Cabot Electric Co.

125 AMORY STREET, BOSTON, MASS.

Branches In All Principal Cities

School Law

EQUAL SALARY FOR NEGRO TEACHERS

In October, 1940, the Supreme Court of the United States announced its denial of a petition made by the board of education of the city of Norfolk for a review of the case of *Alston et al. v. the School Board of the city of Norfolk et al.*, 112, F. 2d 992. The refusal had the effect of sustaining the lower court which had held that the fixing of salaries of Negro teachers at rates lower than white teachers of equal qualifications and experience, on the sole basis of race or color, violates the due process and equal protection clauses of the fourteenth amendment to the constitution.

The defendant, Melvin O. Alston, had been employed as a male teacher by the Norfolk school board since September, 1935, and was in his fifth year of experience as a regular teacher in the Booker T. Washington High School. He had successfully completed the course of instruction of the Virginia State College for Negroes, and he held a Collegiate Professional certificate, the highest certificate issued by the Virginia State Board of Education for teaching in the state.

SCHOOL LAW

School District Government

The powers of such governmental agencies as counties, townships, and school districts are generally more strictly construed than those of incorporated municipalities. — *Tri-City Fresh Water Supply Dist. No. 2 of Harris County* v. *Mann*, 142 Southwestern reporter 2d 945, Tex.

The judiciary will not interfere with the executive or administrative school officers in the performance of their duties which are discretionary in their nature or involve the exercise of judgment, unless such judgment and discretion bear distinct earmarks of either malicious or arbitrary action. — *Fabricius* v. *Graves*, 22 New York Supreme Court 2d 226, 174 Misc. 130, N. Y.

School District Property

The statute imposing liability upon a school district for any judgment against the district on account of an injury arising out of negligence of the district or its officers, or employees, must be liberally construed with a view to effect its objects and promote justice. — *Kline* v. *San Francisco Unified School Dist.*, 105 Pacific reporter 2d 362, denying hearing, 104 Pacific reporter 2d 661, Calif.

School District Claims

A school district which is by statute a body corporate may sue or be sued and has the power to compromise all actions and claims. — *School Dist. No. 1 in City and County of Denver* v. *Faker*, 105 Pacific reporter 2d 406, Colo.

Teachers

The adoption of a policy against the employment of a married teacher in the public schools is not arbitrary or irrational and lies within the field of discretion of the school committee intrusted with the determination of questions of policy. — *Houghton* v. *School Committee of Somerville*, 28 Northeastern reporter 2d 1001, Mass.

Since a new policy often cannot be put into full force immediately without extreme hardships on certain individuals, which in turn may reflect disastrously on the reputation and welfare of a service such as a school service, as a whole, in such instances a gradual introduction of the innovation may be reasonable and permissible, even though for a time some discriminations result. — *Houghton* v. *School Committee of Somerville*, 28 Northeastern reporter 2d 1001, Mass.

A rule of the school committee that the marriage of a permanent woman teacher should operate as an automatic resignation, that no married woman should thereafter be elected as a permanent teacher, and that no married woman already in the service shall thereafter be employed as a permanent teacher, unless she proves to the satisfaction of the school committee that she is living apart from her husband and receiving no support from him, or that her husband is physically or mentally disabled, so that he is unable to provide for her support, is within the policy-making power of the school committee, and is not unconstitutional on the ground of discrimination. — *Houghton* v. *School Committee of Somerville*, 28 Northeastern reporter 2d 1001, Mass.

A married woman, who was dismissed from her position as a teacher in the public schools in accordance with a rule of the school committee because of the fact that she was married, was dismissed for "good cause" in the manner provided by the statute. — *Houghton* v. *School Committee of Somerville*, 28 Northeastern reporter 2d 1001, Mass.

Pupils

Under a New Jersey statute, providing that high school tuition to be paid by sending districts shall be fixed by boards of education of receiving districts, provision that in no case shall the tuition rate exceed the actual cost per pupil refers to the actual cost of education, taking into consideration the cost of school buildings in receiving districts, irrespective of where money came from with which to construct buildings. — *Board of Education of Hohokus Tp.* v. *Board of Education of Borough of Ramsey*, 15 Atlantic reporter 2d 332, N. J. Sup.

Collecting Tuition for Indigent Pupils

The State Supreme Court of Wisconsin, in November, 1940, handed down an interpretation of a 65-year-old "indigent tuition" law (Wis. statutes 40.21 (2), in an unanimous decision which has important implications. The board of education of Madison started investigating and preparing indigent tuition claims more than a year ago with a view of testing this statute. When the

(Concluded on page 72)

97 HILLYARD QUALITY PRODUCTS

NATION WIDE
Universal Satisfaction!

★ Hillyard Floor Maintenance Products are approved by leading Superintendents, Business Managers, physical educators, coaches, floor manufacturers and flooring contractors and specified by many of America's foremost architects . . . Hillyard Hi-Quality Products give entire satisfaction in uniformity, dependability and economy.

★ Your floors will take on that look of cleanliness and attractiveness when you use Hillyard Floor Treatments and Maintenance Methods. In every classification, Floor Seals, Floor Finishes, Floor Waxes, Floor Dressings and Cleaners you will find that they give satisfying service and less spent for maintenance upkeep.

★ Your floors will be kept beautiful when you use Hillyards NEW Floor Maintenance Machines and Methods. These machines and the Hillyard Method will protect and prolong the life of any floor. The rich coloring of the various types of floors is brought out and maintained when Hillyard Floor Maintenance Products are used.

★ Speed, power and weight are co-ordinated to produce the utmost in service at a minimum of effort and expense in the NEW Models of the "Steeltonian" Steel Wool Machines and the "Hiltonian" Lowboy twinbrush scrubbing and polishing machines. These machines are manufactured and assembled in Hillyards own factory. There is a Hillyard Maintenance Expert in your locality who will demonstrate these machines and at no obligation.

"STEELTONIAN" Steel Wool Machine

Adaptable to a multitude of uses, a practical, economical way to recondition wood, linoleum, asphalt tile and rubber tile floors. Uses standard type of steel wool in ribbon form. Employs new dry method of treating floors.

TWO SIZES
10 inch—20 inch

3 SIZES
16 inch
19 inch
22 inch

Free . . .

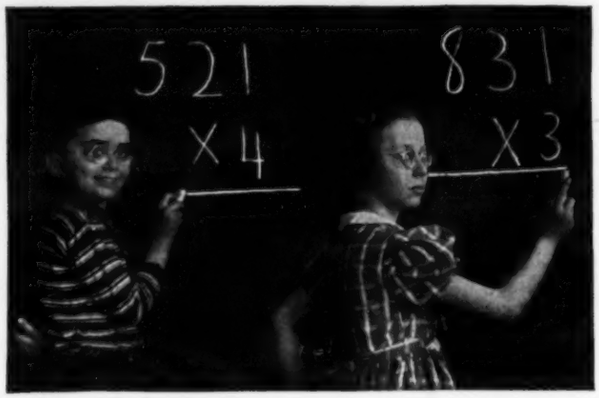
Hillyard's NEW Manual on Proper Floor Maintenance. Full of helpful information. Send for your FREE copy today.

★

"HILTONIAN" Twin-brush Scrubbing and Polishing Machines, Lead the field in utility, efficiency and economy, have brushes for every need. Combine speed, power and weight to give maximum results and long life. Sturdily built and operate quietly. Write for literature.

HILLYARD SALES COMPANY

...DISTRIBUTORS HILLYARD CHEMICAL CO. ... ST. JOSEPH, MO. ... BRANCHES IN PRINCIPAL CITIES...

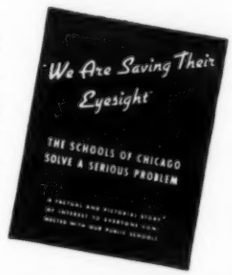


New Classroom Beauty for OLD SCHOOLS

Let us tell you how inexpensively you can beautify and modernize your classrooms with leaf green Sterling "Greensite". Let us tell you, too, about the sight-saving values of this modern aid to visual education.

Weber Costello Company
MANUFACTURERS
Chicago Heights, Illinois

Write for this FREE interesting folder on the use of Sterling "Greensite" in Chicago Public Schools Sight-saving Rooms. Address Dept. A-141



(Concluded from page 70)

Supreme Court decision was announced, Madison had legal claims for tuition of indigent pupils which already exceeded $375,000 for back years, with $150,000 to $200,000 of similar claims yet to be filed. All of this is based on a law which gives school districts the right to recover tuition for persons of school age who reside in the school district and are "maintained as a public charge." The liability under the law is against the municipality or unit responsible for the support of such public charge. Since the statute has been in force, sporadic attempts have been made to recover indigent tuition, and school officials generally have overlooked the revenue possibilities to be found here.

Briefly, the Court established the following interpretation of the indigent tuitions statute: (1) that tuition is chargeable for children of school age "maintained as a public charge"; (2) that the language "maintained as a public charge" means children of families maintained on WPA, as well as those on local direct relief; (3) that when the county operates under a "county plan of relief," the county is liable for indigent tuition; (4) that when the county operates under the "unit system" of relief, then the town, village, or city which is liable for the support of such public charges is also liable for school tuition; (5) that indigent tuition is chargeable for high school and kindergarten as well as the first eight grades.

The Wisconsin indigent tuition statute is closely related to the poor relief laws of the state, and introduces concepts new to most school officials. The statute makes recovery of school tuition for indigent pupils contingent on "legal settlement," which introduces a complicated but basic concept. In Wisconsin relief authorities have always charged the cost of supporting indigent families to the place from which they originally came. The legislature extended this principle so as to permit the school district to recover the cost of educating the indigent family from the unit liable for the support of the family.

Indigent tuition is fundamentally different from nonresident tuition. Specifically, indigent tuition differs in the following respects:

First, nonresident tuition pertains to pupils residing *outside* the school district; indigent tuition pertains to pupils who live *in* the school district, but who have a *legal* settlement elsewhere.

Secondly, nonresident tuition is ordinarily a claim against another school district; indigent tuition, on the other hand, is a claim against a county, town, city, or village just like poor relief costs.

Finally, the tuition rate itself is computed differently for the two types of tuition.

The cities generally stand to gain the most under the Supreme Court's interpretation of the law. This advantage arises from the fact that relief and WPA rolls are concentrated in the cities. Experience in Madison has shown that not less than 25 per cent of the relief and WPA population of the city have legal settlement elsewhere.

BOARDS OF EDUCATION

♦ Warren, R. I. The school board has voted to discontinue paying any expenses attending the performing of operations for removal of tonsils and adenoids of school children. In the past, the parents of children have paid the surgeon's fee, but the school board has borne the cost of services for the nurse, the ether, and the laundry bill.

♦ New York, N. Y. The board of education has asked the selective-service authorities to defer the selection of trade teachers who may be conscripted for military service. The action was taken in a move to prevent the possible crippling of defense training classes conducted by the city school system. All male teachers are urged to notify their selective service boards to the effect that the board desires to be heard in respect to their deferment.

♦ St. Louis, Mo. The legislative committee of the school board has prepared the tentative draft of a bill for placing all nonteaching school-board employees under a merit system. The bill provides that all applicants for school positions must pass an examination. Those already in the employ of the schools must also pass an examination to retain their positions. The purpose of the bill is to eliminate patronage for school-board members.

♦ Ludlow, Ky. A settlement of a financial controversy of several years' standing between the city council and the board of education has been effected with the decision of the council to award the board $1,800 for its share of back taxes collected. The board had contended that the city owed the schools approximately $6,000.

♦ Saugus, Mass. The school board has recently refused to modify its demand that educational requirements be met at the Jehovah Witnesses school, in North Saugus, by the employment of a competent teacher. The Kingdom School is attended by 16 pupils from Lynn and Saugus, who were suspended for refusing to salute the flag.

♦ East Chicago, Ind. The board of education has adopted a policy, which provides that male employees of the schools selected for military training shall be granted a leave of absence for the duration of the training period. Such employees will be reinstated to their assignments at the termination of the leave of absence. Under the rules, the time spent in selective service will be considered as experience on the salary schedule.

♦ Youngstown, Ohio. The school board has accepted a legacy of $25,000, left to the Rayen School by James Parmelee, as a memorial to his mother, Margaret Rayen Parmelee.

♦ Ann Arbor, Mich. Past and present members of the school board were honored by the Ann Arbor Rotary Club, at a luncheon meeting, on December 4, in the Michigan Union. Supt. Otto W. Haisley, of the local school system, was in charge of the arrangements. Mr. Douglas Jamison, a member of the Detroit board, spoke on "The Relations of the Board to the Community and to the School Staff."

♦ Dallas, Tex. The school board has passed a resolution providing that male employees of the schools who are called for military service shall be assured of their jobs when they return.

SAVE in All 4 Departments with the Help of Kewaunee

- LABORATORIES
- LIBRARY
- VOCATIONAL ART DEPT.
- DOMESTIC SCIENCE DEPT.

If your 1941 plans call for new or additional equipment in your School Laboratories, Library, Domestic Science Kitchen, or in the Vocational and Art Departments, be sure to send for the Kewaunee "Blue Book." Here you will find the accumulated experience of more than a third of a century devoted to educational "work-room" equipment. Here you will find the Furniture best suited to your needs — equipment with a world wide reputation for quality and maximum teaching efficiency—always fairly priced. In addition, you will have the benefit of the many economies which Kewaunee Engineers are frequently able to suggest. Write today for the Kewaunee "Blue Book." Let Kewaunee help you save in these Four Departments.

Karcite Sink No. S-600

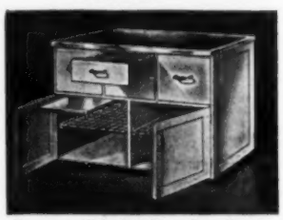
Library Charging Desk No. BL-115

Kewaunee Mfg. Co.
LABORATORY FURNITURE EXPERTS

Representatives in Principal Cities

C. G. Campbell, Pres. and Gen. Mgr.
101 Lincoln St., Kewaunee, Wis.
Eastern Branch:
220 E. 42nd St., New York, N. Y.
Mid-West Office:
1208 Madison St., Evanston, Ill.

Chemistry Desk No. D-702 (Plyroll)



Kewaunee 42-inch Cabinet Base Unit—one of several especially developed for schools

Drawing Table No. L-2028

Lincoln Science Desk No. D-503

Specify Molded Ceramic

KARCITE SINKS

A Kewaunee Product developed in the Laboratories of Mellon Institute of Industrial Research. Molded in one piece with rounded corners and perfect slope to drain. Free from distortion — inert to solvents and mineral acids (except hydrofluoric). Will not crack or break under ordinary weight shocks and thermal shocks. Gray black color—smooth-surfaced—dull gloss finish. Lighter — stronger — easier to clean. Also distributed by most other leading manufacturers of Laboratory Furniture. So, on all orders, specify Karcite Sinks. Write for Catalog and Price List.

An Inspection Blank for School Buildings

The Building Division of the Milwaukee board of school directors requires principals and janitors of elementary and secondary schools to make periodic inspections of the school plant and to return these to the school-board headquarters. All questions in the blank must be answered so that the secretary-business manager has an accurate picture of the fire hazards and of the general housekeeping situation in each building. The reports are used as the basis for further inspections by the director of school-building operations.

(Class: Sr. Jr. Elem. Name of School..... Date..... 1940 No. of Stories..... No. of Classrooms..... No. of Barracks.....

1. Are all exit doors equipped with panic locks?
2. Are these locks tested each week to insure ease of operation?
3. Do they fasten tightly so that additional locks, bolts, or chains are unnecessary?
4. Are such additional locks open whenever the building is in use?
5. Are all outside fire escapes free from obstructions and in good working order?
6. Are they used for fire drills?
7. Are doors leading from enclosed fire escapes kept open during school hours?
8. Are doors which lead to the fire escapes tested each morning?
9. Is all heating equipment including flues, pipes, and steam lines:

a) in good serviceable condition and well maintained?

b) properly insulated and separated from combustible material?

10. Is coal pile inspected periodically for evidences of heating?
11. Are ashes stored so as to touch only concrete, brick, or metal?
12. Are all of the following locations free from accumulations of wastepaper, rubbish, old furniture, discarded stage scenery, etc.?

Check Attic; Basement; Furnace room; Stage; Stage dressing rooms; Other locations.

13. What preparation or material other than soap powder is used for cleaning or polishing floors? Quantity? Where stored?
14. Are shop rooms kept free from dust?
15. Is space beneath the stairs free from accumulations or storage?
16. Is sweeping compound kept in tight metal containers?
17. Are only approved self-closing metal cans on 4-in. legs used for storage of oily waste, polishing cloths, etc.?
18. Are approved metal containers with vapor-tight covers used for all flammable liquids such as gasoline, acetone, etc., on premises?
19. Are all such hazardous materials kept in special fireproof room? In what quantity?
20. Are raffia, cane, upholstery padding, or similar material kept in tight metal containers?
21. Are classroom cabinets and teachers' closets free of wastepaper, oiled dust cloths and other highly inflammable materials?
22. Are project properties which are constructed of lightwood and paper kept away from steam pipes and other sources of fire hazards?
23. Are these project properties flameproofed?
24. Are wastepaper, refuse, rags, etc., kept in metal containers and disposed of daily?
25. Are acids stored only in quart bottles or in special acid storeroom?
26. Are premises free from defective electric wiring or equipment?
27. Are only approved extension or portable cords under 6 ft. long used? And are they disconnected from receptacles except when attended or used?
28. Are all fuses on lighting or small appliance circuits 15 amperes or less?
29. Are electric pressing irons and gluepots equipped with signal light and provided with metal stand?
30. Are sufficient fire extinguishers provided on each floor so that not over 100 ft. of travel is required to reach the nearest unit?
31. Are there two soda-acid extinguishers on high school stages?
32. Is there at least one extinguisher on elementary school rostrums?
33. Have fabric stage curtains been flameproofed within the past two years?
34. Have chemical extinguishers been recharged within a year?
35. Is the date of recharge shown on the tag attached to the extinguishers?
36. Are boxes for hand extinguishers equipped with tool for breaking glass?
37. Is a large woolen blanket readily available on a hook in the cooking room and the cafeteria kitchen for use in case clothing is ignited?
38. Is it folded in pleats for ease in unfolding?
39. Are corridors and stair landings free from chairs except when actually used or attended by a cadet or monitor?
40. Are fan rooms kept clean and free from all kinds of material?
41. Are plenum chambers free from storage of lumber, paper, etc.?
42. Are there at least two means of egress from each floor of the building?
43. Are these located so that the distance measured along the line of travel does not exceed from any door of any classroom 125 ft. From any point in auditorium, assembly hall, or gymnasium, 100 ft.
44. Are all windows free from heavy screens or bars?

DESIGNED AND BUILT *for Lifetime Wear!*

HEYWOOD-WAKEFIELD *Streamline* Furniture is designed and built to give lifetime wear without need for repairs. Each and every piece is formed from tubular, cold-rolled steel. All joinings are torch welded into one, integral unit. And, if you make the slight additional investment for the chromium finish, your Streamline Furniture will look new *always.* May we furnish details on this modern, practical furniture?

Table Desk S 1007 *with* Chair S 913

HEYWOOD-WAKEFIELD

Established 1826

GARDNER, MASSACHUSETTS

45. Do all exit doors open outward?

46. How many interior stairways are enclosed with wire-glass partitions? Are doors to these stairways of self-closing type, equipped with fusible links?

47. Are the windows of storerooms, fuel rooms, and other unattended spaces within 10 ft. of open fire escapes glazed with wire glass?

48. Are manual training, domestic science, other laboratories, and cafeteria so located that fire in one will not cut off the exit from the building?

49. If inflammable film is used, is a smoketight projection booth, built of incombustible material, vented to the outside, provided for motion-picture machine?

50. Are heating-plant and fuel-supply rooms cut off from the main corridors by fire-resistive walls, ceilings, and doors?

51. Are firedoors, including the staircase enclosure doors, kept unobstructed and free to close upon fusing of the fusible link?

52. Where is the main shut-off valve from the gas supply? Is it accessible, and can gas be shut off in case of fire?

53. With gas appliances and pilots shut off, does the meter show no loss in a 60-minute test?

54. Are provisions made for sounding an alarm of fire from any floor?

55. (*a*) Is the sounding device plainly marked and accessible? (*b*) Is the alarm audible in every room?

56. How often are fire drills held? Average time of exit? Minutes?

57. Are fresh-air fans shut down on the sounding of a fire-alarm drill? Yes? No?

58. Are exit lights unobstructed by beams or by other fixtures and perfectly visible?

59. Are exit lights kept burning during occupancy, both day and night?

60. Where is the nearest city fire-alarm box?

61. Considering the construction of the building, do you feel that there is no known means of fire prevention which is not daily observed?

62. Have you observed any hazards not covered in this inspection blank? Yes? No?

63. What practices on the part of workmen now engaged in your building are contrary to good fire-prevention or safety rules?

64. Was the principal with you when the inspection was made? Yes? No?

65. Have you any explanatory remarks? Yes? No?

Signed by:.....School.....
Engineer-janitor ..... Date .....
Principal or representative.....

SOLVES INSURANCE PROBLEMS

The Jewett City, Conn., board of education has revised its insurance policies. A study of the insurance, made by Mr. John Barnett, a member of the board, with five local insurance men, covered 51 policies, and produced solutions for three definite problems.

The first problem involved an evaluation of the school property and the preparation of a definite schedule for the payment of premiums. This was solved by having Mr. Earle E. Gilbert, chairman of the board, direct an accurate appraisal of the school buildings. A complete inventory of the school properties was prepared.

The second problem was to get a fire adjuster to inspect the school buildings and recommend the correction of fire hazards. After the repairs had been made it was possible to get an average rate of .224 for all buildings, as compared to a previous rate of .270 per year.

The third job was the rewriting of all policies under a blanket agreement. All of the insurance agents in the town participated in this study and work. All of the policies are now "staggered" on a five-year basis, that is, one fifth of the insurance expires each year on the first day of September. Under this arrangement, $56,160 expires each year. Premiums are $628.99 annually, less dividend credits of $56.30, making a net annual cost of $572.69. In a three-year period under the plan, the insurance for all school property will be $1,718.07. Formerly, the same insurance cost $2,276.90. Thus, a saving of $558.83 every three years will be made.

The change gives additional coverage on the high school and contents against loss or damage caused by smoke, due to unusual or faulty operation of a heating or cooking unit. It also provides a businesslike arrangement of having the insurance fall due on the same day annually, and of prorating the cost equally each year.

IN-SERVICE TRAINING FOR SCHOOL JANITORS

The city of Brewer in Maine is leading the way in a very important yet neglected area of school service. This progressive city has introduced a course of in-service training for the school janitors or school-maintenance officers.

The Maine State School Bulletin, in an article describing the course, points out that the plan calls for a series of lectures, round-table discussions, and informal but informative talks on various subjects of special interest to school custodians such as: (1) administration of school-plant operation and maintenance service; (2) the relation of the school plant to operation and maintenance; (3) the duties of the custodian; (4) the care of the school grounds; (5) school housekeeping; (6) plant maintenance; (7) mechanical systems, such as heating, ventilation, electrical facilities; (8) important safety precautions; and (9) records and reports relating to operation and maintenance.

For example, the subject of safety consists of a talk by the local fire chief on fire protection and prevention, the use of fire extinguishers, fire escapes, storage of chemicals, paints, waste, fuel, and other inflammable materials, safety firedoors, fusible links, firing, and the like. This meeting will be followed by other lectures by state and local health officers, physical directors, police chiefs, and heating and maintenance experts.

INDUSTRY uses DELTA Machines!

No. 1370. Delta 17-inch Floor Type Drill Press.

Train your Students on the same Low-Cost Machines that are being used by thousands of Manufacturers in every branch of American Industry.

American Industry has been quick to see the many advantages of Delta machines—their low first cost, their low cost of operation and maintenance, their remarkable flexibility, adaptability and efficiency. In every phase of American manufacturing including many plants engaged in national defence work—batteries of Delta drill presses, grinders, saws, shapers, cut-off machines, abrasive finishing machines and other Delta machines—are playing an increasingly important part in breaking "bottle necks" and stepping up production.

The same cogent reasons for the rapid adoption of Delta machines by industry apply to their growing use for school shops. Check into the complete story of Delta machines and see how they can aid in your vocational training program.

No. 1450. Delta 10-inch Tilting Table Unisaw.

No. 890. Delta 14-inch Wood-Cutting Band Saw.

FREE Book Tells How To Layout Shops

Everyone interested in vocational education should have a copy of this remarkable book. It reveals clearly the reasons for the new trend in shop equipment whether for modernizing old shops or building new shops. There are actual photographs and floor plans of 30 shops in this attractive 44 page book. These are authentic school shop layouts embodying the most ingenious solutions of the problems of space, safety lighting, convenience and teaching efficiency in both small and large schools.

Send For Latest Catalog

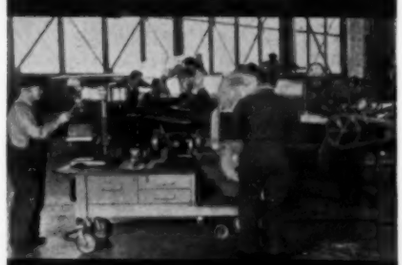
Also send coupon for the new Delta Catalog which gives detailed descriptions, prices and all necessary information on the complete line of Delta machines for school shops.

Delta drill presses especially adapted to the needs of the Eclipse Aviation Division of the Bendix Corporation—more than 100 in use.

16-spindle Delta drill press set-up at Kearney & Trecker Corporation, Milwaukee. This plant also uses Delta grinders and cut-off machines.

Delta wood-cutting band saw in use in large pattern shop.

Delta abrasive belt finishing machine at the Federal Bearings Company.



Mobile unit with Delta drill press and metal-cutting band saw in Airplane shop.

Delta MANUFACTURING CO.
(Industrial Division)
600-634 East Vienna Avenue
Milwaukee, Wisconsin

DELTA MFG. CO. (Industrial Division)
620 E. Vienna Ave., Milwaukee, Wisconsin.

Gentlemen: Please send me, without obligation, a FREE copy of your new book "How to Plan A School Workshop" and copy of latest Delta Catalog.

Name _____

Address _____

School _____

City _____ State _____

Start Now to give them EYESIGHT PROTECTION!

Relight Room-by-Room With COMMODORES

Here is a practical way for schools with limited budgets to bring easier, safer seeing to pupils and teachers alike. Make your poorest lighted classroom your best lighted with COMMODORES . . . relight other rooms as funds become available. Low in surface brightness, the Commodore provides a wealth of smooth, diffused light to help make seeing easy and protect eyes from strain. By E.T.L. test, the Commodore actually gives 86% of the light from the bare bulb . . . more than most indirect fixtures. **LOW MAINTENANCE COST:** Molded from tough, featherweight Plaskon, the Commodore's reflector is easier to clean; easier and safer to handle . . . with less breakage. The trim, simple design of the Commodore lends a fresh new appearance to *old* classrooms; fits readily into new rooms. Users tell us that its better light not only aids in classwork, but stimulates new pride and respect for school property.

See the Commodore

FREE: *Send for your copy of the helpful new booklet, "Recommendations for Classroom Lighting"*

THE F. W. WAKEFIELD BRASS CO.
1200 American Park, VERMILION, OHIO

Classroom Teachers' "Pet Peeves" About School Buildings

Heber Hinds Ryan[1]

It is safe to say that most school buildings are planned with little reference to the notions of classroom teachers as to what those buildings should be like. In all too many cases the board of education is economy ridden to the point where the chief problem is that of getting the building up before the money runs out. Where that is true, there is likely to be the suspicion that the teacher's ideas would prove to be expensive.

If in that suspicion there is the accusation that the teacher might demand a list of things for his own comfort, it is probably unjust. The experience of the writer supports the conclusion that the teacher is likely to think first of those features of the building which make instruction more efficient and so increase the returns to the pupil.

In the spring of 1938 a graduate class in secondary-school administration was asked to consider this question of buildings. Each member of the class was invited to submit in writing his own list of "pet peeves" on the subject of school buildings. The group consisted of 56 men and 2 women. All but three were teachers of at least one year of experience. Almost all were candidates for the master's degree, and the great majority were teachers in secondary schools. All sizes of New Jersey schools and communities were represented, and all kinds of population groups.

Of the 58 members of the class, 38 submitted lists of "peeves." It seems reasonable to assume that the criticisms so listed are genuine and properly spontaneous. The papers differed so widely in character and content that collaboration was not evident, even among teachers whose work was in the same school.

The most popular complaint was *lack of storage and exhibit space;* it was voiced by 21 students, or 55 per cent of those who submitted lists. This complaint signalizes certain changes in educational method that have taken place since many of the buildings represented were erected. The rising tendency toward laboratory-type work in all the subjects of the curriculum has brought into the classroom more and more things made of material. The use of realia and multisensory aids to instruction has given rise to problems of storage and display. Out of the teaching and learning processes there come from the pupils' hands all sorts of things constructed of material and requiring space. To this sort of thing the old buildings are not adapted; and in these days reconstruction of a building to suit changes in educational method is not easy to obtain.

Second among the complaints was *inadequate, unreliable, or noisy ventilation.* Fourteen students, or 37 per cent listed it. This will not surprise most school people. In the opinion of many teachers, schoolroom ventilation still belongs in the list of unsolved problems. Building ventilation systems vary with the wind and with the caprice of teachers to whom ventilation without open windows is no ventilation. Room units blow hot and cold at the wrong time, buzz, hum, and rattle. Window boards blow one day and suck the next. Each plan has its merits, and each has its shortcomings.

The third most popular complaint was *failure to improve the lighting of classrooms in accordance with current advances in artificial lighting,* mentioned by 13 students. Some day, perhaps, our interest in sight saving will prompt us to provide all schoolrooms with adequate and automatically controlled lighting facilities.

Twelve students made the fourth complaint —*lack of teachers' rest rooms.* A room for women teachers is now almost universal, but the men's room is still the exception. In 1916 the writer, invited to criticize the plans for a new wing for the high school of which he was principal, insisted upon a men's room. This was good for several hearty laughs from board members and even the superintendent, but such a room was eventually worked into the plans. There is but one real drawback in the men's room, as some of these students remarked: Every faculty has a few malcontents who insist upon using this room as a kind of wailing wall, to the spiritual discomfort of the majority who would like peace.

Two complaints which were made by eleven students are: *Lack of functional planning in*

(Concluded on page 78)

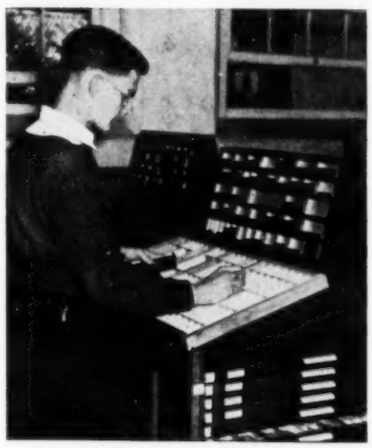
[1]Director of Integration, Montclair State Teachers College, Montclair, N. J.

Teach

PRINTING

...make your

Education Program Purposeful



Printing gives the student a tangible, visible result from his work and spurs him to exercise all his creative ability in applying the basic Arts... English, Mathematics, History, Science, Geography. So forceful is Printing's application of the "Learn by Doing" formula that it has become an important part of the curricula in the Junior, Senior and Vocational High Schools of our country. • ATF has been supplying the leading schools of the country with specifications and equipment for almost half a century... for offset or letterpress. ATF's Department of Education for the graphic arts is recognized as the leading authority on Educational printing requirements. If you are planning to increase your present facilities, or wish to install a new plant... ask ATF first. ATF Engineers, thoroughly experienced in school printshop requirements, will advise you on equipment that best suits your needs and provide you with an engineering layout. There's no obligation whatsoever for this service.

• Write for a copy of "*Educational Statistics*", or "*Why Teach Printing?*"... they're free!

ATF
AMERICAN TYPE FOUNDERS
Education Department 11
200 ELMORA AVENUE • ELIZABETH • NEW JERSEY
Types: Kaufmann Script, Stymies *Branches in Principal Cities*

Try It Sometime!

Substitute a box for your comfortable office chair—either one that's too high or too low to allow your arms to rest in proper working position on your desk. Stick it out for an hour or two and you will appreciate better what improper seating does to the child of school age.

One of the finest investments in child health is the IRWIN Movable Desk shown below. In every detail it's built for comfort and correct posture—quickly adjustable to children of varying size. And it has what no other affords, the self-leveling device which absolutely eliminates the "jiggle" caused by the slight unevenness found in so many floors.

Write for catalog. You'll find in it the perfect answer to every seating requirement.

Self-leveling device with "Plus and Minus" adjustment.

SEATING COMPANY IRWIN GRAND RAPIDS, MICH.

TERRITORIAL DISTRIBUTORS THROUGHOUT U. S. A.

Of course . . . YOUR SCHOOL CAN BE UP-TO-DATE

(*if you modernize with "Standard"*)

Clothes may make the man—but architecture doesn't make the school. It is the equipment *inside* that counts! Your present school facilities can be lifted to modern efficiency with *Standard* Electric Systems — *Standard* Program Clocks for automatic control of class schedules . . . *Standard* Telephones for quick, efficient inter-room communication . . . *Standard* Fire Alarms for protection of life and property . . . *Standard* Laboratory Panels to facilitate experimental studies in the laboratory. Just state your present needs to "Standard" or better, ask for one of our sales engineers to stop and check over your schools the next time he is in your vicinity.

See Our Working Exhibit

at the N. E. A. Convention, Atlantic City Auditorium, February 22-27. *Standard* representatives in Booths H-32, 34 and 36 will welcome the opportunity to discuss your problems.

For complete information on *Standard* "electrification for modernization" write Dept. B.

"Standard Makes Every Minute Count"

THE STANDARD ELECTRIC TIME COMPANY

SPRINGFIELD, MASSACHUSETTS BRANCH OFFICES IN PRINCIPAL CITIES

(Concluded from page 76)

arrangement of rooms, and use of a given classroom for such different purposes that there are clashes over problems of setting up and using special equipment and materials. On the face of it, there is difficulty in knowing whether these represent petty irritation over awkward arrangements, or a sincere regret that work is so handicapped. The writer is inclined to view it in the latter light. Teachers do become so intent upon the hoped-for success of a class exercise that anything which interferes becomes a personal affront.

The table shows the balance of the list:

"Pet Peeves"

Times Listed	
9	Unreliable or inequitable heating
7	Superannuated types of school furniture
7	Lack of acoustical treatment, especially for music rooms
5	Inefficient janitor service
5	Poor floors (especially concrete)
4	Low-visibility blackboards
4	Lack of bulletin boards
4	Lack of proper provision for pupils' wraps
3	Squeaky desks
3	Lack of workrooms for mimeographing, etc.
3	Lack of classroom library facilities
3	The combination auditorium-gymnasium
3	Windows and shades that don't work
2	Lack of conference rooms
2	Double-action, two-way doors
2	Inadequate recreation space for pupils
2	Lack of provision for room-to-room communication
2	Lack of platforms in classrooms
2	Noisy lockers
1	Lack of telephone facilities
1	Lack of care of plants, animals, etc., during vacations
1	Lack of dark-room facilities
1	Lack of systematic provisions for prompt repairs
1	Too many doors to the classroom
1	Insanitary fountains
1	Narrow corridors
1	Dangerous protrusions into corridors — fountains, doors, fire hose
1	Classroom too small
1	Lack of facilities for fly extermination
1	Inaccessible location of water valves
1	Lack of foresight in original electric lighting
1	Inefficiency in clock and bell systems

Complaints which reflect selfishness on the part of teachers are conspicuous here by their absence. It is the opinion of the writer that in such matters teachers are more long suffering than they should be. The school architect may well give attention to such a list as this.

SECONDARY SCHOOLS' GRADUATES AND DROPOUTS TO BE STUDIED

A nation-wide survey of graduates and dropouts, to determine whether the high schools of this country are training their students to fit into the business and industrial life is to begin shortly, under the leadership of the National Association of Secondary-School Principals.

This study will be conducted by principals in several hundred local school systems in various sections of the United States, who will examine their own graduates, the business concerns in their communities, and the relationship between the school curriculum and types of jobs available.

A grant of $25,000 from the General Education Board is supporting the project, known as the "Occupational Adjustment Study."

Basically, the project will attempt to interest secondary schools in the problem of training boys and girls to become occupationally adjusted with a minimum of maladjustment and conflict. It will also encourage schools to modify their programs for occupational life.

The interviews, case studies, and examination of records will attempt to find what the former students, principals, guidance counselors, teachers, and employers have to say about the way in which the schools are preparing youth to become occupationally adjusted. Each school will attempt to ascertain whether or not its program "realistically trains the youth to meet the experiences encountered after leaving school."

COMING CONVENTIONS

January 3–4. Ohio Education Association, at Columbus. W. B. Bliss, Columbus, secretary.

January 10–11. Montana School-Board Association, at Billings. E. L. Marvin, Billings, secretary.

January 11. Massachusetts High-School Principals' Association, at Boston. William D. Sprague, Melrose, secretary.

January 14–15. Nebraska State School-Board Association, at Columbus. E. J. Overing, Red Cloud, secretary.

January 31–February 2. Kansas State Association of School Boards, at Hutchinson. P. J. Newman, Manhattan, secretary.

February 1. Upper Peninsula (Michigan) Association of School Boards, at Marquette. L. K. Cheney, Marais, secretary.

February 6–7. Washington State School Directors' Association, at Bellingham. Mrs. Walter J. Rue, Manette, secretary.

February 6–8. Oklahoma Teachers' Association, at Tulsa. C. M. Howell, Oklahoma City, secretary.

February 7–8. Pennsylvania State School Directors' Association, at Harrisburg. Preston O. Van Ness, Harrisburg, secretary.

February 12–14. Minnesota State School-Board Association, at St. Paul. John E. Palmer, Fergus Falls, secretary.

February 21–27. National Association of Secondary-School Principals, at Atlantic City, N. J. Paul E. Elicker, Washington, D. C., secretary.

February 22. National Advisory Council on School-Building Problems, at Atlantic City, N. J. Alice Barrows, Washington, D. C., secretary.

February 22–27. American Association of School Administrators, at Atlantic City, N. J. H. A. Allan, Washington, D. C.

February 27–March 1. American Association of Junior College, at Chicago. Dr. Walter C. Eels, Washington, D. C., secretary.

When your School Building Time Comes

Newark Junior-Senior High School, Newark, New York; Architect, Carl C. Ade; Contractor, John B. Pike & Son, Inc.

THINK OF THESE STEEL WINDOW ADVANTAGES

By specifying "FENESTRA", Architect Carl C. Ade, not only obtained health advantages and conveniences for pupils and teachers but many worth-while economies as well. Because of the following 10 advantages, this name for steel windows means *better fenestration* in any type of school building:

1. Increased Beauty. 2. More Daylight. 3. Better Ventilation. 4. Easy Opening. 5. Safe Washing. 6. Superior Weather-tightness. 7. Better Screens. 8. Added Fire-safety. 9. Reduced Maintenance. 10. Lower First Cost.

For complete details... phone the local Fenestra office (in all principal cities) or write Detroit Steel Products Co., Dept. AJ-1, 2254 E. Grand Blvd., Detroit, Mich.

Fenestra MODERN STEEL WINDOWS FOR SCHOOLS

ECONOMY IN THE OPERATION AND MAINTENANCE OF SCHOOL PLANT

James R. Newman[1]

In times of depression and widespread economic distress, boards of education begin to cut their school budgets. One of the first appropriations to be reduced along with teachers' salaries is that for maintenance of plant. In some school systems individual board members demand that these appropriations be reduced without too much regard for the harmful effects such reductions might have on the efficiency of the total educational program. In other systems economies are planned and carried out under the direction of the superintendent of schools with the least harm being done to the whole school program.

Many school systems have wasted a great amount of money because the business management of the schools has been carried on by a man almost wholly independent of the superintendent whose service has been limited to the instructional program. It is impossible to practice economy, particularly in the operation and maintenance of the school plant, unless the executive officer of the board of education himself is directly concerned with this economy.

Mort and Cornell, in a recent book on the *Adaptability of Public School Systems*, clearly state that "waste results from failure to adapt." This can be applied to practically every phase of the operation and maintenance program of a school system as well as the transportation program of those systems furnishing transportation for children. Boards of education can save considerable money by adopting a policy of having all buildings waterproofed with some system like the "Larson" while the buildings are being constructed. The difference in the per pupil cost for the operation and maintenance of plant in our district and that in an adjoining district for the present school year is $6 per child. On the basis of our present enrollment we could spend $12,000 more than we are spending in our current budget for operation and maintenance and still have a lower per pupil cost for these two items than the adjoining district. We like to believe that this difference in cost has resulted from the ability of our school board to "adapt."

[1]Abstract of an address delivered before the New York State School Boards Association, Syracuse, N. Y., October 28, 1940. The author is supervising principal of schools at Elmont (School District 16, Nassau County), N. Y.

All Must Cooperate

There must be wholehearted cooperation on the part of the custodial staff and the instructional staff if economies are to be effected in the operation and maintenance of the schools. This was proved to me a few years ago when I was privileged to help make a survey of the schools of a certain city in the midwest. I visited a senior high school building in this particular city and found 1300 watts of electricity being burned in the library at midday and the window shades half drawn on 11 windows of the room. After conducting an experiment with the principal of this school he admitted that the 11 windows would supply enough natural light without having to burn the artificial light if only someone would take time to raise the window shades. In this same building I found many classroom temperatures ranging from 76 to 80 deg. and upon inspection found that the firemen, in a central heating plant back of the school, were operating two stokers full blast in midafternoon. In this particular school system the business manager was directly responsible to the board of education and was not particularly concerned about the superintendent of schools' job which he thought, and in reality, was confined to instruction. After the survey was finished the business manager became an assistant superintendent of schools in charge of business affairs.

Three years after this survey was made I was again privileged to see how another board of education managed the operation and maintenance program of its schools by helping make a survey of a second city in the midwest. It was very soon discovered that this particular board of education was employing between 70 and 80 more custodians than were actually needed in the operation and maintenance program. This situation undoubtedly exists to a greater or lesser degree in other cities because of demands coming from pressure groups for school boards to employ custodians who, according to all sound standards, are not needed.

More Education at Less Cost

Boards of education, generally, are in a position to save the taxpayers money if they will make a serious attempt to economize in the operation and maintenance of school buildings. In September, 1930, such a program was started in the Sixteenth District Public Schools, Elmont, N. Y. The board of education, in August of that year, adopted a

"Gentlemen — It's High Time To Start Modernizing Some of Our Class Rooms — We can do it Economically the PEABODY way"

School Board Members and School Executives all over America are giving more than usual consideration to plans for refurnishing classrooms now out-of-date. To aid in making your classrooms more flexible — more comfortable — more efficient — and more adaptable, Peabody has prepared a modernization plan for you that is economical, practical and gives you exactly what is needed. The Peabody way involves the use of present seating combined with Peabody movable adjustable seating where classrooms must be modernized at a minimum cost.

Write today for Peabody's recommendations. Give number of rooms you anticipate modernizing and number and type of seats now in use. We gladly supply recommendations and prices without obligation on your part. Write direct to —

This is the popular No. 260 Peabody Movable Steel Desk.

PEABODY SEATING CO.

Box 1 N. Manchester, Ind.

If You Haven't A "PEABODY" Quotation, You're Not Ready To Buy

school budget of $229,430 for the school year 1930–31. It was necessary to set a tax rate of $1.31 per $100 of assessed valuation of $17,427,309 in order to raise the amount of this budget after deducting anticipated state aid moneys. The district received $67,933.46 in state aid for the average daily attendance of children which was based on the attendance for the previous year.

By 1935–36 the budget had decreased to $227,765.21, assessed valuation to $15,084,136 and the tax rate to $1.04 per $100 of assessed valuation; while state aid had increased to $83,973.29. Economy that was practiced in the operation and maintenance of plant as well as all other departments of the school system, was responsible for a number of the decreases in the total cost of education. A greatly improved health program was responsible for an increase in the average daily attendance of children which resulted in the increase for state aid for education.

On May 7, 1940, the people of the sixteenth district approved a school budget for the year 1940–41 by a vote of 114 to 2, which represented an increase of more than $10,000 over the budget for 1939–40. This budget for the school year 1940–41 that received such wholehearted endorsement from the people was still less than the one adopted by the board of education for the school year 1930–31. The tax rate was reduced from $1.31 in 1930–31 to a $1 per $100 rate for 1940–41.

The 1940–41 budget provides for an appropriation of $2000 for the public library and 16 full-time positions that were not provided for in the 1930–31 school budget. The positions are: a full-time art supervisor, a music supervisor, a dental-hygiene teacher, a household-arts teacher, an industrial-arts teacher, a second full-time nurse, a third full-time physical-training director, a guidance director, two secretaries, two custodian-bus drivers, and four extra classroom teachers.

True Economies in Business Management

Enough economies have been effected to keep the total school budget below the 1930–31 appropriation and still add all these positions and the necessary supplies and equipment to carry on the work of the various departments. The way the economies have been made are numerous. For instance, in 1929 the board of education appropriated $7000 for fuel. This cost was reduced to $3300 for 1939–40, and the same amount has been appropriated for 1940–41. In 1932–33, the sum of $12,000 was appropriated for transportation; by 1939–40 this cost had been reduced to $6689.22. Other economies have been effected in insurance, operation of plant, and maintenance of plant.

Some of the economies in fuel were made as a result of the purchase of coal carburetors, of the insulating of the boilers, and of the purchase of a stoker. The economy in transportation was effected by the board of education in purchasing and operating four school buses. Efficiency has been added to this service by employing capable drivers and furnishing them with attractive and serviceable uniforms. Insurance costs have been reduced by rewriting all fire-insurance policies on a five-year basis and carrying on a program of building maintenance that has eliminated a great number of fire and accident hazards that have resulted in decreased rates. Considerable money has been saved on the maintenance of plant by paving portions of the school play areas, which has resulted in reducing the wear on classroom floors. Classroom and gymnasium floors as well as corridors have been properly treated, and over a period of years this has resulted in cleanliness and safety as well as economy. Members of the buildings-and-grounds staff have contributed greatly to further economy by experimenting with various colors in painting classrooms. This procedure has eliminated the necessity of paying painting contractors excessive sums of money.

Even though the total budget for the school year 1940–41 is less than the budget for 1930–31, and 16 positions have been added, the personnel of the schools has not had to pay for this expansion by receiving reductions in salary. On the contrary, the total amount appropriated for contractual employees in the 1940–41 budget is $20,790 more than was appropriated in the 1930–31 budget, and the amount for noncontractual employees is $8656 greater.

Teachers, principals, and pupils have cooperated in the program of economy by the careful use of paper towels, instructional supplies, and all other daily supplies. Without this wholehearted cooperation on the part of all employees of a board of education it is impossible to practice much economy in school-business administration.

● Mr. Paul G. Chrisman, of Chanute, Kans., has become superintendent of schools at Gypsum.

● Mr. Claude B. Mullins, of Victoria County, Mo., has become Deputy Superintendent of a 16-county district, at San Angelo, Tex.

● Mr. Rollin Devare has been elected superintendent of schools at Scranton, Kans. He succeeds Floyd Holcombs.

● Supt. K. L. Sherman, of Andover, Mass., has been re-elected for another school year.

● Supt. C. J. Byrne, of Ottawa, Ill., has announced his retirement, to take effect at the close of the school year in June.

WE ARE PLACING

300 EXPERT CABINET MAKERS

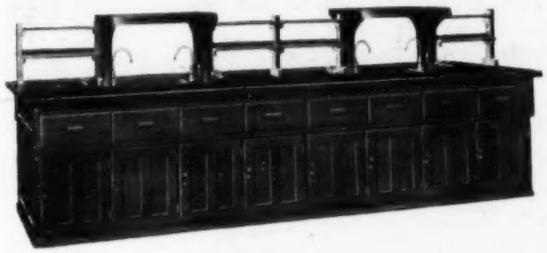
AT YOUR DISPOSAL!

Not to speak of our Planning and Engineering Departments.

Thousands of schools during the past 40 years have already installed Sheldon Laboratory and Vocational Furniture. During 1941 hundreds of new Science Departments will be equipped throughout the Nation. Let Sheldon Sales Engineers give you the satisfaction of perfect laboratories at low cost.

Write today for the Sheldon Catalog of Laboratory and Vocational Furniture illustrating many other types and styles of laboratory tables for Chemistry, Physics, and General Science.

No. H-17 Four Student Table



No. H-49 Chemistry Table

E. H. SHELDON & CO.

MUSKEGON
716 Nims Street
MICHIGAN

Nearly 200 school days ahead—and every day a day of new problems heaped upon old problems for those responsible for the smooth operation of schools. Write Boston Pencil SHARPeners on your school calendar this year—and ease some of your responsibility.

MODEL L

Save with BOSTON *in* '41

Only Boston Pencil SHARPeners feature the famous 15 cutting edges which give 25% more service. Only Bostons do 100% of the job promised for them. Model L shown here is one of the most economical sharpeners on the market . . . low in original cost, practically nil in upkeep. Bostons serve administrative departments, teaching departments equally well . . . help pupils keep their pencil points keen, their work neat and orderly. Your school supply dealer is qualified to quote prices.

C. HOWARD HUNT PEN CO., Camden, N. J.

BOSTON
PENCIL SHARPENERS

The HOLMES — only 16mm Projector with 10-tooth Sprockets

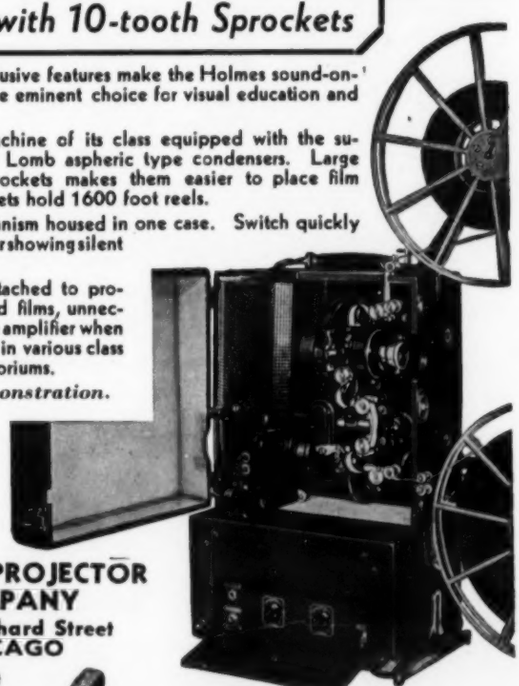
Many other exclusive features make the Holmes sound-on-film projector the eminent choice for visual education and entertainment.

It's the only machine of its class equipped with the superior Bausch & Lomb aspheric type condensers. Large diameter of sprockets makes them easier to place film around — brackets hold 1600 foot reels.

Complete mechanism housed in one case. Switch quickly changes speed for showing silent pictures.

Amplifier is attached to projector. For sound films, unnecessary to remove amplifier when running pictures in various class rooms and auditoriums.

Ask for Demonstration.



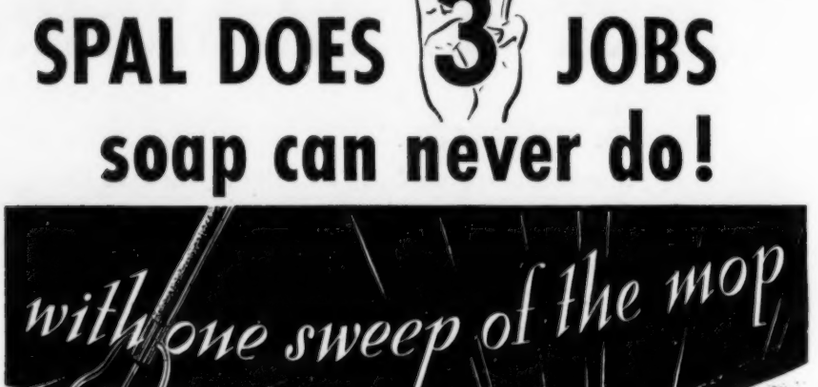
Write for Catalog, Prices and nearest dealer

HOLMES PROJECTOR COMPANY
1812 Orchard Street
CHICAGO

Holmes PROJECTORS

16 mm Portable, Mazda or Arc Lamp.
35 mm Portable, Mazda or Arc Lamp.
35 mm Imperial for Auditoriums.

SPAL DOES 3 JOBS soap can never do!



Streaks and surface film vanish . . . dirt floats away. There's a sheen on the floor—lustrous—protective. With one sweep of the mop, your janitor completes 3 jobs soap can *never* do!

That's the sort of cleaning job Spal does. It's fast . . . it's thorough . . . it's *safe* to use . . . and it gives you economies that count.

That's because Spal's amazing formula offers an entirely new method of cleaning—a new expurging action that dissolves dirt, draws it to the surface, and *floats* it away.

But Spal does 2 extra jobs soap can *never* do. It polishes, and it protects. A specially developed light filler leaves a *lustrous film* that not only reveals the true beauty of the floor but also *guards the surface* from harm.

So get the facts about Spal. Make an actual "on-the-job" test and prove to yourself that Spal is made to give you *three times* more work, in less time, and at a lower cost, than any other cleanser you've ever used.

Cleans by the New Expurging Action!

Gives Floors a Lustrous Polish!

Leaves a Film of Surface Protection!

Spal is safe to use on all types of flooring. Approved by leading manufacturers.

The HUNTINGTON LABORATORIES Inc
HUNTINGTON INDIANA

SPAL
LIQUID SCRUB COMPOUND

THE SOCIAL POSITION OF THE SCHOOL JANITOR

The position and status of the school janitor has been undergoing a rapid change within recent years. The true estimation of the worth of the janitor in a school system is becoming more and more realized. The mere fact that in many locations the janitor is now called custodian, is in itself a recognition of the importance placed on the janitor's position in the schools.

Mr. Harold C. Wenberg, Superintendent of Schools at Cresbard, S. Dak., in discussing this topic before the city and consolidated schools section of the South Dakota Education Association, pointed out that one of the tasks of the custodian is discipline. A survey has shown that in at least 15 of the 50 schools studied, the custodian is required to assist in the care of children in the washrooms; in 45 of 50 schools he is required to keep order in the halls; in 8 out of 50 schools he must prevent idleness and loitering on the grounds; and in 885 out of 1339 cities he must act as special policeman to prevent vandalism.

Men are usually in the minority in the grade schools. Where a manly example must be set before the boys at school, the custodian must indeed be a model. He may not talk about inferiority complex, but he never deals harshly with misguided efforts to be manly. He may not be familiar with the work of Pestalozzi, but he moves among his young friends with the same attitude as that great educator.

The custodian must be a man who understands and likes children. He must inculcate in the children a desire to keep the building neat and clean. He must be vigilant to keep paper and chalk from the floors, and to see that mud is not tracked through the building. In short, he must seek to eliminate careless habits and to build up good habits of conduct among the boys and girls.

The typical school janitor usually lives in the community, perhaps for a number of years, and his acquaintance with the people and children of the community gives him considerable political and social influence. He occupies a unique position and has an opportunity to mold public opinion on school matters, favorably or unfavorably, according to his character, training, and standing in the community.

One of the important services of the school custodian is his service as a public relations agent. He has many contacts with persons not readily reached by the superintendent, principal, or teachers and his influence with such a group is very large. What he says regarding the schools is accepted by a large percentage of the people as true, because these people have confidence in him and know him personally. The custodian is in position to wield a large educational and moral influence. The superintendent and the other school officials can perform a service if they will take steps to keep the custodian intelligently informed, good willed, and cooperative.

SUBVERSIVE TEXTBOOKS

The problem of subversive materials in textbooks relating to social science, particularly civics and economics, is constantly before school boards and is at the present time one of the troublesome difficulties which the war hysteria is aggravating. Most of the books complained of can be attacked only from one point of view. They have argued against the continuance of vested interests which interfere with the equalization of opportunity and the enjoyment of reasonable high standards of living for all people. The complaints are coming from a limited number of individuals who have gained from the special privileges which small groups have enjoyed. In only few instances have communistic and socialistic theories found expression.

The New England Association of School Superintendents makes the following pertinent statement concerning the present textbook problem:

Indicative of a lack of unity and of confidence are certain attacks being made upon textbooks and materials used in some of our public schools, on the ground that such are subversive and un-American.

The public school system of America was founded by our forefathers in order that democratic government might flourish, prosper, and be permanent. It is a fundamental part of our local, state, and national governments. It has been placed in local control in order that it might be subject to the will of the people. For its own growth and development it should have honest, unprejudiced, and constructive criticism. On the other hand any indiscriminate and unwarranted attacks, especially in this time of tension and turmoil, which tend to lower the confidence of the American people in their public schools is dangerous and undemocratic.

The control of the schools of New England is in the hands of local school boards. It is to these boards that charges should be made, that evidence should be presented. The verdict should be rendered by these boards after a review of all the evidence, including the judgment of qualified members of the profession.

We therefore submit that those who would do a real service to their schools and to their country, should proceed according to ways and means provided by local governmental units. No other method serves constructive purposes. There is no other just and unbiased method of procedure.

NEWS OF OFFICIALS

- Mr. Joseph Reap has been re-elected as president of the school board at Pittston, Pa.
- The school board at Nanticoke, Pa., has reorganized with the election of Dr. B. A. Stegura as president; Dr. J. Harold Beckley as vice-president; Arthur Davis as secretary; and William F. Schimmel as treasurer.
- Mr. Gerry Morris has been re-elected president of the school board at Plymouth, Pa.
- Mr. W. W. Dodson has been re-elected president of the school board at Harrisburg, Pa.
- The school board at Erie, Pa., has reorganized with the election of Milton Schaffner as president, and Dr. Guy C. Boughton as vice-president.

Teachers and Administration

THE TEACHER'S SUCCESS

Teachers more than any other professional group are anxious to see those with whom they come in contact grow and succeed in life. It is the ambition of every able teacher to make himself indispensable and to have his pupils fully realize themselves in every worth-while human activity.

Discussing this point in a recent bulletin to his teachers, Supt. Harold T. Lowe, of Newport, R. I., wrote:

"A recent book by Maxwell Droke has a passage which I would like to pass on to the members of the staff. Mr. Droke points out that we really like to see people succeed but that fact is often forgotten when we are working at ordinary tasks. I quote: 'The world is always with a winner. The instinct of hero worship is inherent in us all. The man who puts up a clean fight and comes out on top can count on the crowd. We want you to win! Look at the tons of ticker tape we shower on a Lindy or a Corrigan. The principle applies not only in spectacular achievements, but in the humbler paths as well. Are you a salesman? The boss wants you to win! He gets a great glow of satisfaction in watching you surmount obstacles, and it isn't solely a matter of profits either. Are you going to make a speech? The audience wants you to be a wow! Are you a scientist working in some cloistered laboratory? A thousand learned voices are ready with generous accolade.'

"I might interject here, are you a teacher? The 'Chief' wants you to be a whiz. He wants to hear from the former students of every one of you the sort of thing he heard the other day about a member of our staff who has served more than one generation of school children. A group of young people no longer in school were talking recently, and I heard this remark about our colleague, 'She is one of the sweetest women I ever met. She was so kind and thoughtful of us in class. I am sure I liked her better than any other teacher I ever had.'

"Stone monuments mean very little except expense. So far as I am concerned, I prefer to distribute flowers before the hearse arrives. The real monuments to teachers are not in the cemeteries. They are in the hearts of boys and girls and men and women whom we have been privileged to serve. Nothing could possibly please me as much, as your Superintendent, as to have people speak of every one of you in the way those young people spoke about that beloved teacher."

A TEACHERS' CODE OF ETHICS

Tifton, Ga. The Tift County board of education has adopted a code of ethics for teachers. The code, in brief, is as follows:

To dedicate myself to service to the child—the hope of tomorrow;

To believe that service to the community is an integral factor in service to the child;

To believe that cooperation and loyalty are the essence of that service which the teaching profession rightfully expects from its members;

To believe that adverse criticism and insinuations in regard to teachers, administrators, or members of the school community are to be condemned;

To believe that all school elections, promotions, or advancements should be obtained exclusively on merit;

To believe that personal integrity is the cornerstone of social well-being.

SUPERIOR TEACHERS' SALARY SCHEDULE

The salary schedule of the board of education of Superior, Wis., provides for beginning salaries of $1,200 for teachers with a bachelor's degree. An additional $75 per year is paid where the teacher has completed six years of successful experience, and $50 per year additional is paid for the next nine years of service, up to a maximum of $2,100.

Under the schedule, teachers with a master's degree are given an additional $150. Teachers who advance from two to three years of training are advanced $100 on the schedule.

During the school year 1941, the board will pay a family allowance of $100 for a dependent husband or wife whose income does not exceed $100 per year, and will also pay $100 for one or more total dependents under the age of 21.

During the year, under a policy of the board, any woman teacher who marries will automatically suffer the loss of her contract. All teachers are required to reside in the city, unless they have been given special permission by the board to live elsewhere.

THE APPLETON SALARY SCHEDULE

The board of education of Appleton, Wis., has adopted a new salary schedule to include all teachers working in classroom or supplementary educational capacities.

The salaries will be based on the amount of teacher training, as determined by the following classification:

To be eligible for professional-advancement increases, all teachers must show satisfactory work, approved by the superintendent and the board. In all cases, evaluation of experience outside of Appleton will be determined by the superintendent.

Advancement in the schedule is restricted to $100 per year, including the increase provided in the schedule, and the added consideration given for sex, head of family, and directors or heads of departments. Increments because of sex and head of family will not become effective until after two years of experience in the Appleton schools.

It is provided that teachers must attend summer school at least once every five years, in order to keep abreast of the times in schoolwork, and to be eligible for yearly increments. The board reserves the right to discontinue or modify the schedule, to conform with local living costs, changes in economic status, and other conditions.

How will they clean the floors, the walls, erasers and boiler tubes in your new school? Can you picture any other method as flexible, thorough, easy to use and as low in cost in the long run as the Spencer Vacuum Cleaning illustrated here? The great majority of educators and architects would say, "No—there is no better way."

The Spencer System is used in more than 2500 schools. It is far more powerful than ordinary vacuum cleaners. Special vacuum tools clean all surfaces including cement and linoleum. All dirt and dust goes to containers in the basement.

The Spencer System is dependable and built to last for years.

Ask for the new Spencer Bulletin on Commercial Vacuum Cleaning. Shows how it is used, what it saves. Ask for Bulletin No. 121-R.

S-181-A

SPENCER HARTFORD CENTRAL AND PORTABLE VACUUM CLEANING SYSTEMS

THE SPENCER TURBINE COMPANY, HARTFORD, CONN.

To Get Down to the Facts

Binders Board is harder, stronger, more dense and more durable than substitute materials. Therefore, books bound in Binders Board will last longer and stand hard service better than those whose covers are made of an inferior product.

Experienced buyers know the added value which Binders Board imparts and always insist upon its use by including this clause in their book orders.

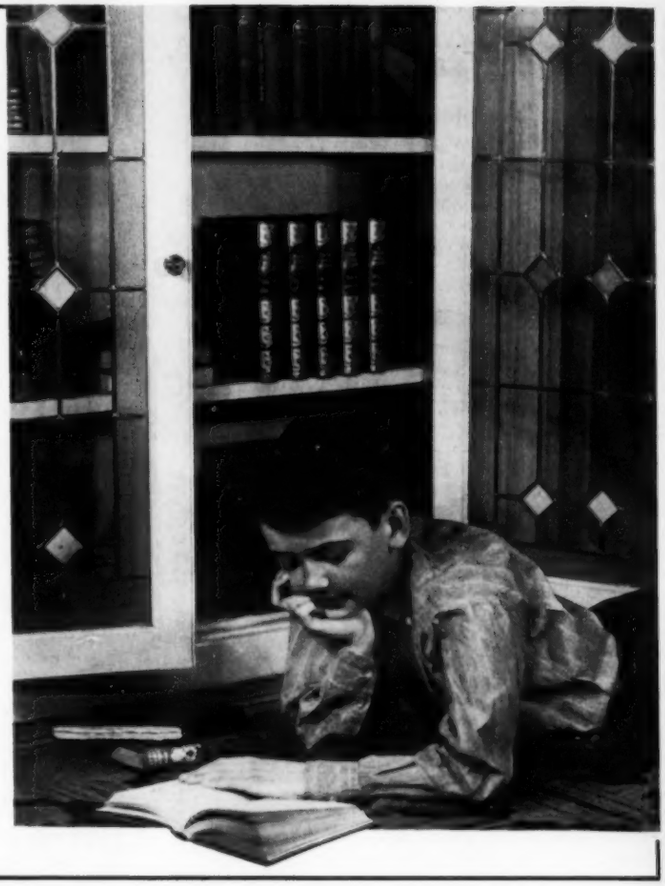
"Books to be bound in Binders Board made according to Commercial Standard CS50-34."

BINDERS BOARD MANUFACTURERS

Colonial Board Co. . Manchester, Conn.
Consolidated Paper Co. . Monroe, Mich.
The Davey Company . Jersey City, N. J.
Fandango Mills . . . . . Milburn, N. J.
Fibreboard Products Inc., San Francisco, Cal.
C. H. Norton Co., N. Westchester, Conn.
Shryock Brothers . . . . Philadelphia, Pa.

CAROLINE L. LLOYD, INC.
280 MADISON AVENUE NEW YORK, N. Y.

BOOKS BOUND IN BINDERS BOARD ARE BOUND TO LAST



Teachers having two years or more training and no experience will begin at $1,000, and will advance at the rate of $50 per annum up to a maximum of $1,500 at the end of ten years.

Teachers having three years or more training will begin at $1,100, and will advance at $50 each year up to $1,750 at the end of thirteen years.

Teachers having four years of training will begin at $1,200, and will advance up to the maximum of $2,000 at the end of fourteen years.

Teachers having five years of training will begin at $1,300, and advance up to $2,150 at the end of fourteen years.

In addition to the schedule, special increments of $100 will be paid to men, $300 to married men, and $100 to heads of major departments. Salaries of principals, assistant principals, supervisors, kindergarten assistants, and special teachers will be fixed at the discretion of the board.

TEACHERS

♦ The Circuit Court at Milwaukee, Wis., has rendered an opinion, upholding the state law compelling teachers and principals to retire at the close of the school year in which they become 70 years old.

The court, in refusing to issue a writ of mandamus for the reinstatement of Miss Elizabeth Morgan, a former vice-principal, held that even though the retirement law was not enacted until 1937, it is retroactive and applies to all teachers in the school system. The court further declared that the law which grants tenure to teachers, can be modified at any time by the legislature in the interests of promoting the efficiency of the public school system.

♦ Chicago, Ill. The local teachers' union has protested as "ill advised" a new rule of the school board, requiring future high school teachers to have a master's degree in a major subject. The rule became effective January 1, 1941.

♦ Minneapolis, Minn. The school board has voted to cut the salaries of teachers who continue in service after the retirement age of 67. A report to the board has indicated that many veteran teachers are not taking advantage of voluntary retirement.

♦ School boards in Michigan, as employers, may properly request local draft boards to grant deferments to meet the demands of national defense where educational institutions are called upon to provide a continuous supply of skilled workers, under a decision of State Superintendent Eugene B. Elliott, of Lansing.

♦ The State Council on Higher education of Kentucky has passed a rule, requiring a four-year course in teacher training before admission of teachers to the postgraduate courses given at the four state teachers' colleges. The rule becomes effective next summer.

♦ Russell, Ky. The school board has adopted a policy, guaranteeing the re-employment of male teachers who are called for military service.

♦ The school board of Hillsborough County, Fla., has passed a rule, requiring all teachers in the county schools to establish residence in the county.

♦ Iron River, Mich. Male teachers who may be called for military service have been assured of their positions upon their return when their service ends, under a rule of the school board.

♦ Beverly, Mass. The school board has voted to continue the plan of set raises for teachers, janitors, and other school employees, along with the 1940 plan for the higher brackets.

Under the code, the school trustees will recognize the minimum requirements for applicants nominated for teaching positions, which are four years' college training, or two years' college training plus five years' successful teaching experience. It is the duty of the supervising principal to consult the principals regarding the transfer or appointment of a teacher in a school of which he or she is the principal. Under the code principals are required to report unsatisfactory work of any teacher, to recommend the reappointment, transfer, or dismissal of teachers and secretaries, and to confer with the supervising principal about any school administrative problem.

♦ Lexington, Ky. A refund of $105,073 in pension funds has been turned over to 293 teachers of the local school system. The refund has been expected since last September, when it was announced that money held by the local pension board exceeded that required as a contribution to the state pension system. The pension plan now in operation in the state has replaced the one formerly maintained on a local basis in the city schools. The board has retained $186,000 of the funds to meet the responsibility of continuing annuities to those retired prior to the last school year.

♦ Tampa, Fla. The school board has adopted a code of regulations governing the employment of teachers.

♦ Bridgeport, Conn. The school board has considered the restoration of the annual salary increments for teachers who have not reached their maximum salary. A reduction in the teaching staff, with a saving of $30,000, will permit the increases. The plan will become effective in April, 1941.

♦ Waco, Tex. The school board has approved salary increases of from $5 to $10 per month for 132 elementary school teachers.

♦ Temple, Tex. The school board has adopted a salary schedule for white teachers, prepared by a committee of teachers. A similar schedule is in preparation for colored teachers.

♦ The Colorado State College of Education, at Greeley, Colo., has recently been placed on the approved list of the Association of American Universities. It means that the work of the institution is of a high standard and is deserving of recognition by colleges and universities of the country.

♦ The city schools of Longview, Tex., are making progress this year. Special efforts are being made to create a more studious atmosphere among the students. The school plant is up to the standard and operating successfully.

NEW BUDGET SAVER TABLE

No. V-1645 top size 23"x31"
No. V-1645A top size 24"x36"

You can use this new low priced HAMILTON Table in your Mechanical Drawing or Art classes without strain on your budget. No. V-1645 Table, with 23 x 31" drawing surface, priced at only $7.50 in Eastern Territory. Write for price in your territory. Soft clear basswood top adjustable in slope. Positive height adjustment from 30½" to 40¼". Attractively finished hardwood base. Send in the coupon today.

ONLY $7.50

HAMILTON MANUFACTURING CO. Two Rivers, Wisconsin

HAMILTON
Laboratory and Vocational Furniture

Hamilton Manufacturing Co.,
Dept. A.S.B.J. 1-41, Two Rivers, Wisconsin
Please send me detailed information on the low priced tables No. V-1645 and No. V-1645A.

Signed .....
School and Position .....
Address .....
City and State .....

School Administration News

TAKING CARE OF THE 80 PER CENT IN HIGH SCHOOLS

In Marshall, Tex., the school administrative staff had come to the conclusion that the curriculum was being set up to take care of the 20 per cent of the students who actually go on to college, and were sadly neglecting the 80 per cent of high school graduates who could not or did not seek a college education. It was further revealed that very little vocational training was being afforded the large number of students dropping out of high school before graduation.

A survey was conducted over a period of years to ascertain just what was happening in the senior high school. As a result of the findings, the administrative staff decided to offer courses of study giving more attention to graduates who were not desirous of a college education. At the same time they decided not to sacrifice academic standards for those going on to college.

With the opening of the school year 1939–40, the senior high school began offering two courses of study: First, a liberal-arts course, planned for college entrance; and second, a general course, designed for students not planning to go to college.

Before a student is eligible to enroll in the general course, he must present an approval card, signed by his parents or legal guardian, stating that the student is not planning to go to college. Any student will be permitted to take the liberal-arts course after enrolling in the general course, but he is notified that he will have to spend an additional year in high school to complete the requirements. It is also possible for a student, after completing the general course, to qualify for college entrance by taking the additional courses required for the liberal-arts plan.

The general course comprises such subjects as American history, civics, English, laboratory science, and mathematics, with 6½ credits for the total number required, and 9½ credits for electives, making a total of 16 credits for graduation.

Under the new plan, no distinction is made between students taking the general course, and students enrolling in the liberal-arts course. At the present time, about 40 per cent of the high school student body is enrolled under the general plan, of which many are "A" students. The general plan, it is pointed out, offers the student an opportunity to specialize in a vocation. More than one third of the high school teachers devote full time to vocational work. Among the vocational courses offered are vocational agriculture, home economics, commercial work, diversified occupation, laboratory of industries, and occupations.

In addition to the regular day class schedule, the school is sponsoring two part-time commercial classes, and a National Defense Program enrolling NYA boys and out-of-school rural and nonrural youth.

ADOPT RULES FOR USE OF SCHOOL HALLS

The board of education at Davenport, Iowa, has adopted new rules and regulations governing the rental and use of school halls by cultural and civic groups. The board lists the following general classes who may be granted the use of school buildings:

1. Groups having direct connection with the schools as, teachers' organization, student clubs, parent-teacher associations.
2. Tax-supported bodies as, county schools, city and county administrations, park board, etc.
3. Civic clubs, charitable and character-building organizations, and adult-education groups not operating for profit and devoted to community interest or child welfare.
4. Fraternal organizations and others operating for the benefit of a restricted group, except when they contribute the net proceeds to community or civic improvement.

Under the rules, there will be no charge for Class 1, nor for Class 2, except those having funds which may be used to pay the fees. Those in Class 3 will be charged three fourths of the fees listed, while the full amount will be assessed against those in Class 4.

Fee schedules have been set up for the use of the stadium, the fieldhouse, auditoriums, and gymnasiums. A fee of $3 will be charged for the use of an auditorium, gymnasium, or classroom in the older elementary schools. For the new schools the fee ranges from $3 for some rooms, up to $12 for the use of an auditorium. A fee of $35 is charged for the use of the high school auditorium when an admission is charged, and $20 when no admission is charged.

Strict regulations have been set up to bar "ism" groups. Religious, political, and commercial groups will be excluded from the use of school property, but allowance will be made for such exceptions as past experience has developed an established traditional acceptance.

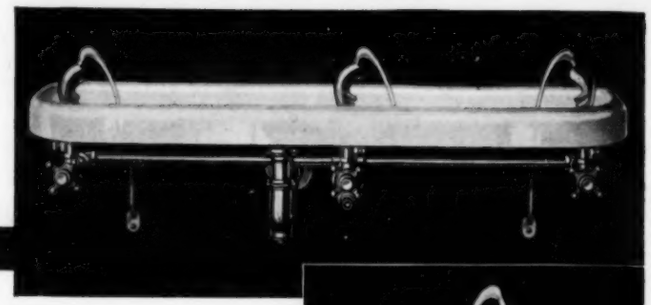
LOSSES IN PUPIL POPULATION STUDIED

Dr. Harold G. Campbell, superintendent of schools of New York City, in a recent report on statistics of pupil registration, has emphasized that heavy losses in pupil registration were suffered by the New York city schools in the four-year period ending last June.

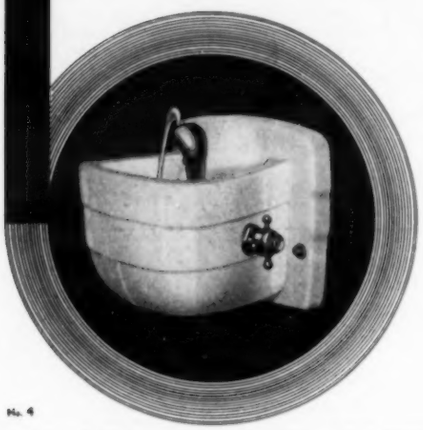
During the period, Dr. Campbell pointed out, the schools of the city reported a reduction of 51,619 in the number of pupils on register, the loss for the 1939–40 school year reaching a high point of 24,218.

The loss of 24,218 for the year ending last June, it is conceded, exceeded the total school population of Springfield, Mass., which had 24,055

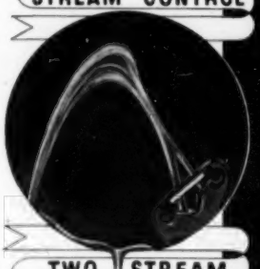
The Nations Choice for School Sanitation



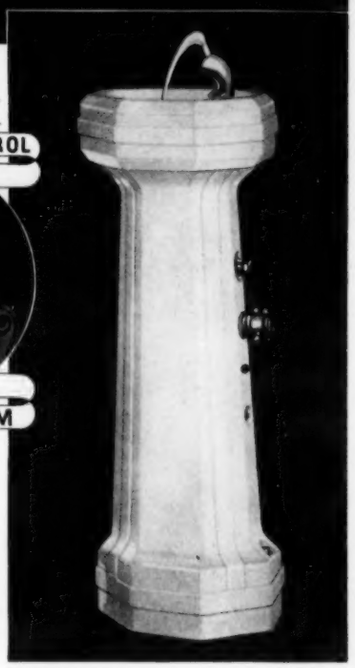
There is a reputation of years behind a Halsey Taylor Drinking Fountain . . . a reputation for positive sanitation under all conditions and for freedom from servicing annoyances after installation. That's why Halsey Taylor Drinking Fountains are preferred by schools all over the country as new equipment or for replacing obsolete unsightly and unsafe fountains!



AUTOMATIC STREAM CONTROL



TWO STREAM PROJECTOR



THE HALSEY W. TAYLOR CO., WARREN, O.

Halsey Taylor DRINKING FOUNTAINS

No. 4

pupils. The loss of 9780 in 1938–39 would have depleted Cedar Rapids, Iowa, of its school population, while New York's loss of 12,803 in 1937–38 would have wiped out New Britain's 12,751 pupils.

According to Dr. Campbell, the losses of recent years are more than offset by the leaps and bounds with which the school system grew in the earlier years of the last twenty-years. The result has been that, even with the heavy register losses of the last four years, the average annual growth has been 11,995 pupils. The largest single increase was in 1921–22, when the register jumped 41,121 over the previous year.

The figures show that the school system registers are still larger than they were in 1920.

SERVICE AND THE SCHOOL CAFETERIA

It is obvious that the most important service which the school cafeteria renders is the serving of good wholesome food, well prepared, at a minimum cost.

Miss Gretchen Ganschinietz, director of the school cafeterias in East St. Louis, Ill., speaking recently before the National School Cafeteria Association, discussed some of the services which the school cafeteria has to offer. First, the cafeteria offers an opportunity to some charitably minded persons to help those in need of help. Second, the cafeteria can do much in socializing pupils. Class parties are given or planned for in the cafeteria; football banquets and other social occasions are celebrated there. Parents attend many of these events and a closer bond is effected between the school and the home. Third, the cafeteria can offer a great service by teaching courtesy, thoughtfulness, and a general democratic attitude. Not the least phase of the school service is the satisfaction which the parents feel that the children have a place in the school building where they can go and partake of good, hot food, at a price which is within the reach of all of the children.

Another aspect of the service, emphasized by Miss Ganschinietz is the fact that the cafeteria trains future citizens and thus helps to develop in the pupil an intelligent discrimination in the selection of food. The cafeteria seeks to promote good behavior, manners, cleanliness, courtesy, and honesty. Habits acquired through daily contact, with a well-ordered and systematized manner of eating, will carry over into adult life. This training results in an intelligent and discerning public, conscious of the important role which food plays in the lives of people.

Again, it is pointed out by Miss Ganschinietz that the cafeteria performs a service to the pupil in protecting him from traffic hazards and inclement weather. By eliminating noon dismissals, traffic hazards are cut in half because a trip home and back to school is obviated. By keeping the pupils in the building they are protected from exposure to the elements.

In addition to serving food which is wholesome and attractive, the cafeteria must also look to the economic side. The children come with a minimum amount to spend and the cafeteria must give the maximum value in nourishment. In the junior high school, especially, it is necessary to offer the most attractive foods that will do the most good.

In cases where the parents feel that they can prepare a lunch to be brought to the school, it is necessary to provide a place for the children to eat, and to supply articles of food with which they can supplement this lunch. Many children buy milk, a dessert, a vegetable, or soup to eat with the lunch carried from home. In the East St. Louis schools, school lunchroom employees are trained to take a personal interest in the welfare of the pupils. In cases where children must eat certain foods upon the order of the physician the cafeteria attends to this service and supplies the needed foods.

In addition to all these services, the lunchroom endeavors to help pupils who cannot afford to buy lunches. It provides an opportunity for them to earn a lunch. This helps the pupil to maintain his self-respect and the respect of his fellow pupils.

In East St. Louis it has been found that the short noon hour made possible through operation of the school cafeteria means a shorter school day and a saving in lights and heat. This saving operating over a period of an entire year is passed on to the taxpayers.

The cafeteria is rapidly becoming a vital part of the school system and it is no longer necessary to have to justify its existence.

MARKS OF PROGRESS IN FALFURRIAS, TEXAS

Experimental work in teaching English to foreign-born children has been inaugurated in the public schools of Falfurrias, Tex. The purpose of the work is to permit Spanish beginners to learn the English language and to progress as rapidly as their ability permits. In some of the more rapid groups the results have been above the expectations of the school faculty when the work was started a year ago.

In the public schools of the city an effort is being made to give these Spanish children every opportunity for growth by giving them experiences that will change their environment to a higher type of living. In giving the child these experiences the conduct of the pupil is modified and new behavior patterns are brought into use. As the pupil grows he learns to substitute intelligent action in the place of behavior patterns.

At the close of the first year's experimental work, it was found that approximately one third of these children had done the beginning work and also that required in the state curriculum for first-year pupils in the primary grades. This indicated that a distinct forward step had been made in the education of non-English speaking children in South Texas.

A CORRECTION

The James Denman Junior High School, San Francisco, was designed by W. P. Day and Albert F. Roller, architects. Mr. H. L. Michelson, erroneously credited as associate architect, did not participate in the planning of the building.

"... why we selected AMPROSOUND PROJECTORS"

Says a large user of sound projectors: "Our continued choice of Amprosound projectors is based on their record of performance with us . . . . their simplicity of operation . . . . their durable construction. They have no tricky gadgets to get out of order, and will stand shipment by truck, freight, car, plane or train, time after time, year after year, without operating precision and efficiency being impaired."

Amprosound Model YA—the versatility of Ampro sound projectors permits their use in classrooms or auditoriums with 750 or 1000 watt illumination. Be sure to see an Ampro demonstration before deciding on projection equipment.

Some Large Users of Ampro Projectors

Today, thousands of schools, colleges, universities and libraries are using Ampro silent and sound projectors. Here is a partial list of educational, industrial, governmental and other users of Ampro projectors: Boards of Education in New York City, Chicago, Detroit, Kansas City and hundreds of other cities—Allis-Chalmers Co., American Air Lines, Firestone Tire & Rubber Co., General Electric Co., General Tire and Rubber Co., Mead-Johnson Co., Shell Petroleum, Fisk Tire, General Motor Acceptance, Servel (Electrolux), Anheuser-Busch, Inc., Stewart-Warner, Illinois Bell Tel., Dictaphone Corp., Wright Air Field, Union Carbon & Carbide Co., Kraft Cheese Co., Walgreen Co., Wilding Pictures Prod., C.C.C. Camps in Sparta, Wis., El Paso, Tex., Phoenix, Ariz., Columbus, O., Fort Bragg, N. C., Ideal Pictures Corp., U. S. Navy Rec. Serv., U. S. Dept. of the Interior, Bureau of Mines, U. S. Dept. of Agri.

SEND FOR CATALOG

Showing complete line of Ampro 16mm sound-on-film, silent, and convertible to sound models. Thousands of Ampro precision projectors are rendering splendid service in schools all over the world. Find out what they can do for you.

AMPRO
PRECISION CINE EQUIPMENT

Ampro Corporation, 2839 N. Western Ave., Chicago, Ill.
(Dept. ASB-141)
Please send me new Ampro Catalog. I am particularly interested in:
☐ Ampro 16mm. silent and Convertible to Sound Projectors
☐ New Amprosound 16mm. Projectors
Name.....
Address.....

New Books

Liability for School Accidents

By Harry R. Rosenfield. Cloth, xvii–220 pages. Price, $2. Harper & Brothers, New York, N. Y.

Here is a timely book. The expansion of the school program to include shop activities for boys and home-economics courses for girls, physical education and athletics for all pupils, transportation to and from school, and instructional trips — all these activities increase enormously the possibility of accidents to pupils. The rising number of accidents to pupils reported to school boards and the growth in the number of lawsuits brought to recover damages for negligence alleged against school boards, teachers, and other school employees are well known to school boards and their executive officers, and suggest the necessity of a thorough understanding of the problems of liability. They suggest, too, the necessity of understanding the need for and the limitations of insurance, and finally of remedial legislation along several lines.

The present book discusses, first, the general doctrines of liability for negligence; second, the liability of school boards and school districts under the common and statutory law, the personal liability of school-board members and officials, and the personal liability of teachers and other school employees; third, the specific liability for accidents in and around school buildings, in transportation, in gymnasiums, and on athletic fields, in health services, and in off-school activities.

As a general principle, the courts have held that school boards as groups of persons serving the public interest in an unselfish way are and must be held individually free from responsibility for accidents occurring on premises within the range of their authority. The exception arises where state statutes definitely provide that accidents due to negligence must be compensated. But, here the burden falls upon the school district and not the individual.

The author here says: "Briefly stated, in the absence of evidence of bad faith or improper motives school-district trustees and officers cannot be held personally liable for the negligent performance of the duties imposed upon them in their corporate capacity as a board, nor can they be held personally liable for the negligence of employees of the school district. Some states have even put this exemption of board members from liability directly into statutory form." But teachers, principals, and superintendents are not so universally immune. "The rule is universal in the United States that a teacher, principal, superintendent, or other employee of a school board is liable for his or her own negligence. But recently the Supreme Court of the United States has stated this to be the basic principle of law: 'The government does not become the conduit of its community in suits against its agents or instrumentalities merely because they do its work.'

"There have been cases of suit brought jointly against the teacher and the school board in which the teacher was held liable and the school board was held immune. And in many other cases in which only the board of education was sued, the courts have absolved the board but specifically stated that the employee whose negligence caused the injury would have been personally liable. Many know of the personal liability which has been attached to bus drivers, and which frequently involves judgments of thousands of dollars. Fewer seem to know of suits brought personally against teachers, principals, and superintendents. It is clear, of course, that where a school employee is not acting in the course of his employment, there is no question that he is personally liable and that the school board under no circumstances can be liable on his behalf. In any event, any teacher who feels he is exempt from suit by law is due for a rude awakening."

It is even doubtful whether a board may reimburse a negligent school employee for any damages which he may be obliged to pay to an injured person. There is at present a perceptible change in the laws and in the court decisions. In New York particularly, there is a tendency to depart from the doctrine of immunity of public bodies. The courts while interpreting the laws of the state, have expressed the thought that "the doctrine of state immunity is a historical anachronism" which deserves the attention of the lawmakers.

The author makes a number of useful recommendations, both as to needed changes in the statutory law and in the rules to be formulated by school authorities designed to lessen accidents on school premises. Insurance, he feels, will not alone solve the problem: "The wisdom of purchasing liability insurance has been questioned from an educational point of view on the ground that the basic issue is the prevention of injuries to children, and that merely to relieve teachers of the responsibility for injury would leave the children in the same hazardous position.

"Also of deep importance is the challenge to the financial wisdom of purchasing liability insurance. In a recent study made by the business manager of the board of education of Glendale, California, a survey was made of the Los Angeles experience over a 16-year period ending in 1936, and the conclusion was reached that if the Los Angeles School District decided to carry public liability and property damage insurance, the premium for one year would be three times greater than the total loss experienced over a period of 16 years, or an expenditure of $1,120,000 for $27,000 worth of protection.

"In other words, the implication is that instead of carrying liability insurance large cities might well build up their own sinking funds or might even establish a state liability insurance fund somewhat after the fashion of the workmen's compensation fund. This is a matter which bears very serious investigation before any conclusions can be drawn. Further study is urgently needed."

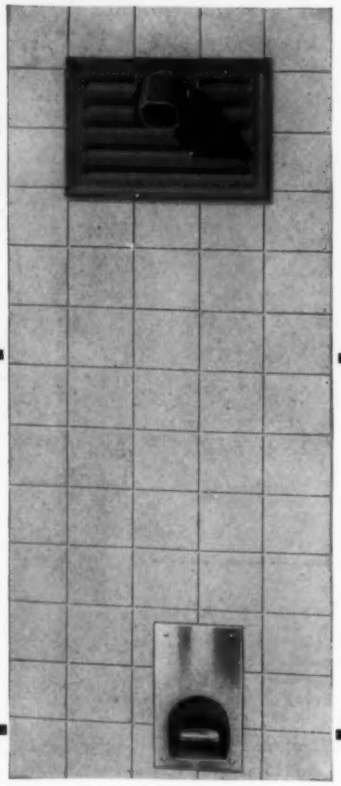
In small school districts, insurance is unquestionably a necessary form of protection, but the character of the policies and of the underwriting policies must be carefully studied to insure the type and amount of protection needed — at a reasonable cost.

A School in the Country

By Chalmer Richardson. Cloth, 251 pages. Price, $2. Greensburg, Publishers, New York, N. Y.

This is the story of a young schoolmaster who chose the superintendency in a small Nebraska town for his professional career. Into his daily life in the school came teachers, townspeople, school-board members, and first and last young folks — the pupils whose education he was responsible for and whose lives he sought to develop and shape. The story is graphically told, without any great events, just the everyday problems and difficulties of children and teachers which Superintendent Thompson struggles with and solves in the optimistic and idealistic manner so characteristic of American school executives.

The book — or more accurately it was the school over which Superintendent Thompson presided — has one disappointing aspect that the author never intended to develop and express. The Auburn school touched the lives of the pupils for only five days in the week and for eight or nine months of the year. It sought to develop for these children knowledges and attitudes that would help them succeed in a democratic society. It accepted the conventional pattern of organization and curriculum, and its teaching staff did an excellent job according to the accepted standards and requirements. But the very situation which the school board and the community set up for the superintendent and his staff prevented them from coming to grips with the deeper cultural and spiritual problems of the pupils so that they might grow into occupationally competent, politically and economically in-



Announcing

The NEW "FR-W" MODEL

(Full Recessed)

SANI-DRI

"MORE THAN A DRYING SERVICE"

Suitable for installation in any wall construction 8" or more in thickness. Model "FR-W" SANI-DRI has been designed *especially for school washrooms.* Being full-recessed it conserves room space—the full-recessed foot-pedal provides greater safety and protects against accidental or deliberate damage.

Illustrated literature sent on request.

Dependable Since 1897

THE CHICAGO HARDWARE FOUNDRY COMPANY

Sani-Dri Division 141 School Street North Chicago, Illinois

Producers of High Grade Iron, Ni-Resist, Semi-Steel, Brass, Bronze, Aluminum and Alloy Castings • Machine Work • Plating • Porcelain Enameling • "Sani" Food and Drink Equipment • "Favorite" Cookware • "Sani-Dri" Electric Hand and Hair Driers • Welding Rods.

dependent, culturally able, and yes, religiously and morally informed men and women.

As a story the book is enjoyable: the school situations are typical without being trite, and the characterizations are true and quite universal.

Story Weaving

By Francis Vivian. Cloth, 175 pages. Price, $2. Chemical Publishing Company, New York, N. Y.

The techniques of short-story construction are explained for beginners. The reader who follows the author's painstaking analysis of the problems of approach, characterization, plot, locale and setting, dialog, crisis and climax, opening and ending, may never be able to write a short story himself. But his employment of genuine artistry in the story will be raised to new high levels. As a Britisher, the author is not fully appreciative of the complete superiority of American short stories, as compared with the English and French.

Luck of Scotland

By Ivy Bolton. Cloth, 229 pages. Price, $2. Longmans, Green & Company, New York, N. Y.

A well-sustained story of the time of King Bruce of Scotland, when sorrow and confusion came to the land because of the warring strife between neighboring clans. Interesting as the book is, written for young folk of junior high school age, it is equally valuable for supplementary reading in the history classes.

20th Century Bookkeeping & Accounting

By Paul A. Carlson, Alva L. Prickett, and Hamden L. Forkner. Cloth, 543 pages. $1.60. South-Western Publishing Co., Cincinnati, Ohio.

This new, 18th edition of the popular *20th Century Bookkeeping and Accounting* is based upon recent economic changes, current business practices, and modern trends in curriculum revision. New units are provided for students about to enter business, the professions, or public office. Attention is given to accounting for personal financial affairs in a businesslike manner.

The cycle plan has been employed for the learning process. In the first cycle, the student obtains a comprehensive picture of a simple but complete accounting cycle. As each new cycle is developed, there are introduced new principles and applications. To give the student practice in applying all of the principles studied in each cycle, an exercise, project, or practice set is available at the end of each completed cycle.

Turse Shorthand Aptitude Test

By Paul L. Turse. Price, $1.30 for package of 25; 10 cents for specimen set. The World Book Company, Yonkers, N. Y.

This test meets a present-day need for a valid measure of aptitude for stenographic work. It is based on a thorough analysis of abilities requisite for shorthand success, and in its present form is the result of two experimental editions. Its predictive value is indicated by the correlation between test scores of students beginning instruction and results of achievement tests after one or two years of instruction.

The material includes a manual of directions, an outline of the test, a test key and directions for scoring, and a class record.

Basketball for Girls

By Wilhelmine E. Meissner and Elizabeth Y. Meyers. Cloth, viii–87 pages. Price, $1. A. S. Barnes & Company, New York, N. Y.

This brief treatment of the fundamentals of basketball play for girls is primarily addressed to coaches but is also simple enough for players who want to improve themselves in a fine girls' sport.

The Chicago Plan

By Chauncey S. Boucher. Revised by A. J. Brumbaugh. Cloth, xiii–413 pages. Price, $3. University of Chicago Press, Chicago, Ill.

This revision of a book, which aroused considerable interest in the University of Chicago's plan of freedom to attend or cut classes, and of the requirements for comprehensive examinations, etc., adds the experience of the past five years.

Yesterday and Today

By Nila B. Smith, Stephen F. Bayne, Johanna M. Hopkins, and Mary E. Steel. Cloth, 320 pages. Price, 88 cents. Silver, Burdett & Company, New York, N. Y.

This reader for third-grade classes is planned to complete the work of the third grade, or to be used as a beginning reader in the fourth grade. While it is purely supplementary in character, it contains a carefully controlled vocabulary, and the subject matter includes selections under such broad units as travel, children's hobbies, life in China, early American history, gathering and spreading news, homes big and little, etc.

Caravans to the Northwest

By John Blanchard. Paper, 121 pages. Price, $1.24. Houghton Mifflin Company, Boston, Mass.

This book, product of a program sponsored by the Northwest Regional Council, offers accurate, unbiased, vital knowledge about the Pacific Northwest.

It describes vividly the mining, irrigation, agricultural, industrial, and electrical developments which are designed to make the Pacific Northwest a region of promise to the present inhabitants and to those being driven from their homes by droughts, dust storms, and misuse of land. It presents a dramatic unit of conservation and regional development for use in social studies courses.

Student's Exercise Book in Junior Business Training

By Raymond C. Goodfellow and M. Herbert Freeman. Paper, 156 pages. Price, 60 cents. The Macmillan Company, New York, N. Y.

An exercise book, to be used in connection with the textbook, "Fundamentals of Business Training."

The Effect of Varied Amounts of Phonetic Training on Primary Reading

By Donald C. Agnew. Paper, 50 pages. Price, $1. Bulletin No. 5, 1939, of the Duke University Press, Durham, N. C.

A history of the teaching of primary reading has disclosed considerable differences of opinion concerning the use of phonetic methods. This study seeks to determine the effect of varied amounts of phonetic training on a battery of reading tests selected to measure the abilities about which there has been controversy. The amounts of phonetic training were obtained through the use of a special scale, devised to measure degrees of phonetic experience indirectly from the teacher's procedure.

Doctor Agnew concludes that "if the basic purpose in the teaching of primary reading is the establishment of skills measured in this study (namely, independence in word recognition, ability to work out the sounds of new words, efficiency in word pronunciation, accuracy in oral reading, certain abilities in silent reading, and the ability to recognize a large vocabulary of written words), the investigations would support a policy of large amounts of phonetic training. If, on the other hand, the purposes of teaching primary reading are concerned with 'joy in reading,' 'social experience,' 'the pursuit of interests,' etc., the investigations reported offer no data as to the usefulness of phonetic training. It is possible that the aims of primary reading should embrace all these purposes."

The Secrets of Selling

By Morton S. Rutsky. Paper, $1. Published by The House of Little Books, New York, N. Y.

This brief outline of the techniques of selling is valuable for beginners and for the experienced salesman in need of a "refresher." Honesty, sincerity, service to the customer, and plain, old-fashioned energy are still the keys to success.

Religious Liberty Under the Constitution

By Herbert Wright. Paper, 87 pages. Reprinted from the Virginia Law Review, of November, 1940.

A study of religious liberty under the constitution and The Bill of Rights.

Writers Here's How

By Mildred I. Reid. Paper, 56 pages. Published by The House of Little Books, New York, N. Y.

The author offers a course in creative writing applicable to fiction, articles, and play writing — all based on an experience of 20 years as critic and writer.

Publications of Interest to School-Business Executives

Contemporary American Architecture — Schools

By R. W. Sexton. Boards, vi–96 pages. Price, $6. The Architectural Book Publishing Company, Inc., New York, N. Y.

School authorities and architects will welcome this collection of photographs and floor plans of recently completed school buildings. They will, however, distinctly regret that the collection is so limited and that it gives so small a view of the enormous development which has taken place recently in school planning.

During the last decade, American education has grown enormously in scope and efficiency. The techniques of administering secondary and elementary schools, the organization of departments, the progressive methods of instruction have grown to a point that there is no comparison with the old, conventional type of school. All of this growth has required, and is producing, an enormous growth in the character and quality of school buildings. More than ever it is true that each school sets up a special problem, in which the locally observed philosophy of education and school administration, the methods of organization and teaching, all result in special requirements which expert school authorities must formulate in a statement of space requirements and departmental integration so that the architect has a real basis for planning. That the resulting buildings are vastly different in general arrangement and plan, in the relation of rooms and departments, and in the layouts of individual rooms and departments is only natural. To classify school buildings, therefore, as of the U type, or the T type, or some one of the usual typical plans that were developed during the first two decades of this century is to give an altogether erroneous idea of the general plans and arrangement of buildings.

All of the foregoing suggests that a collection of plans which includes only 17 high schools and 18 elementary buildings, representative though that collection may be in every respect, can do little more than give a very general clue to the vastly complicated and important problems of planning buildings for use of schools on the secondary and elementary levels. Add to this the variety of problems which arise from local conditions of site and exposure, and the difficulty of using a book of this kind for the solution of local problems, becomes still more apparent.

The book does give an interesting clue to two general tendencies in design which are particularly strong at this time. American school designers have completely dropped the Gothic and Romanesque forms, and where they still stick to a traditional style, they wisely limit themselves to free modifications of the delightful Georgian and American Colonial styles. The latter have been used, and with particularly happy effect, in small schools that fit beautifully into the small town and suburban situations and in the average residential neighborhoods of larger cities. There is something warm and friendly and typically American about most of these buildings that overcomes the criticisms of conservative homeowners and even of real estate men, who fear that a school building may interfere with real estate prices.

If the secondary tendency in design — that of employing the "modern" forms — continues the steady growth of the past 10 years, it is likely that functional designs will become almost exclusively the "scholastic" style. The newer "modern" schoolhouses show considerable growth in the masterly use of simple lines and masses, but there is much room for improvement in grace and refinement of form, and in the warm, attractive use of the newer materials. There is a hardness and coldness about some of the cement, metal, and glass buildings that clashes with the happy informality of the schools conducted within their severe walls. Of the present collection, the Wellesley Senior High School is most appealing in its simple dignity; some of the concrete buildings are distinctly disappointing.

As suggested above, the plans vary enormously in character but a tendency toward the more open plan is distinctly noticeable. Several of the plans might be criticized as failing to observe the common standards of school planning and construction, as set up by such authorities as the National Council on Schoolhouse Construction. Generally speaking, however, they represent an enormous advance over older examples of planning for safety, economy, and co-ordination. It is to be regretted that two of the three parochial schools represented are not altogether typical of the best planning in that field.

List of Inspected Electrical Equipment

Paper, 111 pages. Published by the Underwriters' Laboratories, Inc., 161 Sixth Ave., New York, N. Y.

A supplemental list, containing listings of inspected electrical equipment since May, 1940. Records of favorable reports issued after the publication of this supplement will appear in the monthly issue of the Electrical Bulletin.

The Disposition of School-Bond Issues and Special Levies in Ohio School Districts, January 1 to November 5, 1940.

Compiled by Dr. T. C. Holy, and Roy Wenger. Paper, 22 pages. Published by the bureau of educational research, Ohio State University, Columbus, Ohio.

This report, which is divided into two parts, discusses the disposition of school-bond issues and special levies submitted in Ohio city and exempted villages, and the disposition of bond issues in Ohio county school districts during the period from January 1 to November 5, 1940.

Of 293 special tax levies submitted in Ohio school districts, 263, or 89.76 per cent, were approved by the voters. In the cities and exempted villages, the issues submitted were 9, and of these 4 were carried. The amount of the bond issues carried was $768,500.

In the counties, the number of bond issues submitted was 63 and the number carried was 33. The amount of the bond issues submitted was $3,982,930, and the amount of those carried reached $1,992,630. The total amount of bond issues carried reached 50.03 per cent.

Kindergartens

Four pages. Universal Window Company, Berkeley, Calif.

Contains typical plans for three kindergartens, together with permanent and movable equipment detail.

Broadcast Receivers and Phonographs for Classroom Use

Paper, 75 pages. Published by the Committee on Scientific Aids to Learning, New York, N. Y.

This report contains a general discussion of the factors to be considered in the selection of broadcast receivers and phonographs for classroom use. It is believed that a most useful service can be performed in advising schools as to the specific models of equipment which will best satisfy their needs.

School officials will find here specific information on the performance of radio receivers.

Painting for Defense

Paper, 15 pages. A bulletin of the New Jersey Zinc Company, 160 Front St., New York. Contains federal specifications.

Thomas Jefferson Memorial Jr. High School, Washington, D. C.
Architect: Nathan C. Wyeth, of Washington.

Classes come . . . Classes go
*Terrazzo** IS THERE TO STAY!

EVERY DAY of the school year a thundering herd of youngsters pound and scrape this TERRAZZO floor. But this search for knowledge has no effect on TERRAZZO. It takes its punishment and repays the school with its remarkably long life and low upkeep. Through scores of semesters, the TERRAZZO floors and hallways of the Thomas Jefferson Memorial Jr. High School in Washington, D. C., actually seem to improve with wear.

You can have this modern floor in almost any design or combination of colors you want. You can use it for floors, walls, baseboards, wainscots and stairways—and save money. First cost is low . . . repairs and replacements are eliminated . . . cost of cleaning is cut. It's smart and sanitary—inviting and easy to walk on. Consult your local TERRAZZO contractor, or write The National Terrazzo and Mosaic Association, 1420 New York Avenue, N. W., Washington, D. C.

***5 Reasons for Using Terrazzo**

1. ECONOMY. Initial cost *plus* no repairs . . . no replacement . . . minimum upkeep over a period of years, for Terrazzo equals—usually is less than—initial cost *plus* repairs . . . and replacements . . . and higher upkeep for other types of floors.

2. COMFORT. Finished Terrazzo is *easy to walk on.* It is less slippery than any waxed surface. Furthermore, Terrazzo can save you enough money to acousticate your ceiling, thus giving you a very low noise level.

3. CLEANLINESS. Terrazzo can be sealed so as to be practically non-absorbent. Its smooth, jointless surface *cleans easily* . . . can harbor no accumulation of macroscopic or microscopic germs. It is aseptic.

4. COLOR AND DESIGN. Terrazzo has warmth and beauty. You may specify *any design* you wish—pictorial or geometric—in virtually *any combination of colors.*

5. DEPENDABLE INSTALLATION. This Association's objective is to see that your Terrazzo installations *turn out exactly as you want them.* Write us today for complete information on the above points or see our advertisement in Sweet's Catalog for basic technical data.

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION

use DAYTON SAFETY LADDERS

The perfect all-around
SAFETY LADDER
for your school

. . . that's why, in schools all over the country, the first choice of maintenance men is the Dayton Safety Ladder. Only on the broad, firm platform of a Dayton Safety Ladder, does he have that confidence and assurance of safety that enables him to work faster, safer.

Ladder jobs are shortened; extra men required to steady ordinary ladders are eliminated. Dayton Safety Ladders, made of tested airplane spruce, combine great strength with lightness of weight. Dayton Safety Ladders—with their STANDARD safety shoes — are "as safe as standing on the floor."

For catalogue address: — Dayton Safety Ladder Co., 121 W. Third Street, Cincinnati, Ohio

The DAYTON Safety Ladder Co.
121 W. THIRD STREET
CINCINNATI
OHIO

As Safe as Standing on the Floor

School Board Conventions

PENNSYLVANIA STATE SCHOOL DIRECTORS WILL MEET IN HARRISBURG

The forty-sixth annual meeting of the Pennsylvania State School Directors' Association will be held February 7–8, in the Education Building, at Harrisburg, with President W. A. Roberts presiding.

An interesting and helpful program has been arranged, consisting of general sessions and a number of sectional meetings. Among the speakers on the program will be Dr. A. J. Stoddard, of Philadelphia; Hon. Ellwood Turner, of the Joint State Government Commission; Hon. Arthur E. James, governor of the state; Mr. Homer L. Chaillaux, director of the National Americanism Committee; Dr. W. A. Roberts, president of the Association; Mr. Arthur C. Babson, of Babson. Inc.; and Dr. C. Howard Witmer, of Lancaster County.

The twenty-eighth annual meeting of the State Association of School-Board Secretaries will be held on February 6, in Harrisburg. Mr. Harold W. Cramblet, president of the Association will preside. A number of sectional meetings will be held for the discussion of problems of secretaries of school boards.

NEBRASKA SCHOOL BOARDS WILL MEET IN COLUMBUS

The Nebraska State School Boards Association will hold its annual meeting in the Kramer High School, in Columbus, January 14 and 15.

Dr. W. F. Hemphill, of Blair, will open the program with a talk on "The Place of a School-Board Member in Education." Dr. Archer Burnham, secretary of the State Teachers' Association, will follow with an address on "Education and National Defense."

Dr. Charles Dienst, Deputy State Superintendent, will open the afternoon session with a talk on "Needed School Legislation." Dr. E. B. Schmidt, of the State University, will talk on "Educational Inequalities." Dr. Harvey Bradford, of Lincoln, will discuss the subject, "Vocational Education."

There will be a general forum, conducted by Supt. M. C. Lefler, of Lincoln.

WASHINGTON STATE SCHOOL DIRECTORS WILL MEET IN BELLINGHAM

The Washington State School Directors' Association will hold its annual meeting in Bellingham, on February 5, 6, and 7, with President Herman C. Anderson presiding.

The officers are rapidly completing the program, which calls for a general session and an informal meeting for the open discussion of subjects of interest to the members. The theme of the meeting is Education and the Defense of Democracy. Among the speakers who will appear on the program are Dr. W. W. Haggard, of the Western College of Education, at Bellingham, and Gov. Arthur B. Lauglie. One of the subjects to be discussed at the meeting is the reorganization of school districts, as outlined by a recent survey made in the state.

Information concerning the program or the speakers may be obtained by writing to Mrs. Walter J. Rue, secretary, at Manette, or Dr. Carl Cozier, chairman of the local committee on arrangements, Bellingham.

MINNESOTA SCHOOL BOARDS WILL MEET IN ST. PAUL

The Minnesota School Board Association will hold its annual convention in St. Paul, on February 12, 13, and 14. Dr. John E. Casey will preside at the sessions.

The officers of the association are completing plans for the program, which will include a variety of subjects of interest to the members of the school boards. Among the subjects to be discussed are transportation for nonresident pupils, flat and supplemental aid to schools, and special legislative enactments of interest to school officials. Dr. Copeland Smith, of New York will speak on the topic, "America's Future."

ILLINOIS ASSOCIATION OF SCHOOL BOARDS ADOPTS RESOLUTIONS

The Illinois Association of School Boards, at its annual meeting held in Springfield, on November 14 and 15, adopted three resolutions, presented by Mr. Albert G. Duncan, of Evanston. The first resolution asks that the legislative committee request the state legislature to improve the collection of the delinquent property tax to return to the tax rolls much property which is not now yielding local taxes. The second one asked that the legislature provide funds for the education of handicapped children, including the crippled, deaf, blind, and delinquent children. It was also requested that funds be provided for the education of children handicapped by speech defects. The third one relates to musicians' unions and calls for the appointment of a committee to survey the situation and to seek a remedy for the present conflict between labor and the schools in the matter of educational musical programs and entertainments.

NATIONAL COUNCIL OF STATE SCHOOL BOARD ASSOCIATIONS

The officers of the National Council of State School Board Associations are rapidly completing plans for the annual meeting of the Association, to be held in Atlantic City, N. J., February 22–27, in connection with the meeting of the American Association of School Administrators.

A luncheon conference has been arranged, to be held on Monday, February 24, in the Surf Room of the Ambassador Hotel. It is expected that a number of the state associations of the country will be represented.

Information concerning the program and the speakers may be obtained by writing to Mrs. I. E. Porter.

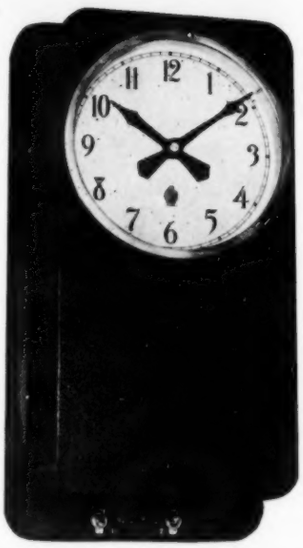
SIMPLICITY—DEPENDABILITY—LOW COST

3 Virtues, Worth While, and Sought After.

In Selecting New Equipment, to Which would You give Preference? Which, if Necessary, would You Cross Out? You are Now Planning for 1941 Purchases. What about Automatic Class Dismissals? What about Reliable Class Room Time?

SYNCROTIME Program Clocks, and Synchronized Clock Systems,

are So Simple that Anyone can Install them.



Syncrotime, Metal Case, Electric Program Clock, with 8" dial. Tells time in the office, and Rings Bells on Schedule. On right, you see this clock with its cover removed.

Style 010 Class room clock. Metal case,—finish as directed. Dial sizes, 10", 12", 15" and 18"

There are No Delicate Adjustments, or Complicated Central Equipment, requiring a factory trained Expert.
Why:—They will run upside down or lying on the floor.
They are TRUE Time-keepers, Tuned to Arlington Time.
They are LOW in Cost.
No one Need be Without them.
For 1941, — Don't Miss Your Opportunity
Insist on SYNCROTIME and GET ALL THREE VIRTUES.

NATIONAL TIME & SIGNAL CORPORATION

600 E. MILWAUKEE AVENUE DETROIT, MICHIGAN

BUILT FOR PUPIL, TEACHER, AND CITIZEN

(Continued from page 36)

one for girls, one for boys, and one for visiting teams — each section having an outside door leading directly to the athletic field as well as having a separate indoor approach to the gymnasium.

The school department offices occupy the first section of the south wing, the high school business office, principal's office, and those of the vice-principal and the dean of girls occupying the front center.

In addition to school department and high school offices, the first floor has a little theater seating 154, four foreign-language rooms, three for mathematics, and a teachers' lounge.

On the second floor are five history rooms including a social studies laboratory, five English rooms, a health suite, a library, and a most attractive music room.

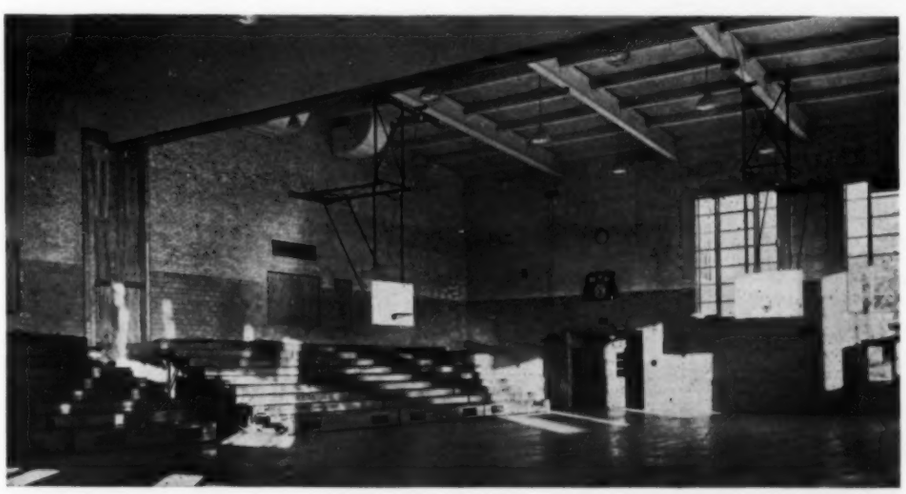
An art room, four science laboratories, two laboratories for household arts, four commercial classrooms, and a commercial machine room, as well as a cafeteria accommodating 350 at one sitting, are located on the third floor. The cafeteria kitchen will compare well with that of any modern commercial restaurant, and like the cooking laboratory is equipped throughout with stainless steel. An electric elevator serves pupils who may be physically handicapped, teachers, and the cafeteria. The women teachers like the pupils have a rest room on every floor. The men have a single rest room on the second floor. The classrooms have neither clocks nor inkwells. The laboratories, which are equipped with Lincoln type tables — of one or two levels — are grouped by departments, the head of each department having a special office.

Inasmuch as local pupils may attend the Smith's Agricultural and Vocational School without paying tuition and at the suggestion of the State Department of Education, no provision was made for vocational courses. However, a large, general shop was built as a separate unit, completing the quadrangle.

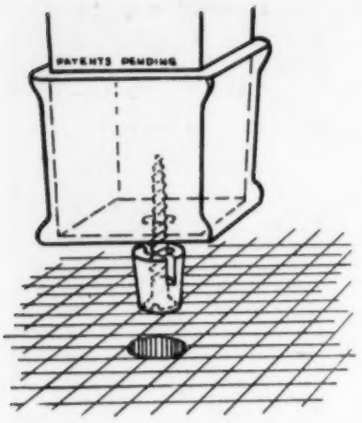
Perhaps the two most unique rooms are the little theater and the social studies and debating laboratory. To date, the former has been the most widely used of any part of the building. Each pupil is required to take public speaking once a week. The little theater, therefore, is used by all 844 pupils each week as well as by those having an especial interest in dramatics and by various civic clubs and organizations after school hours.

This was the feature of the entire building which it was most difficult to have incorporated in the plans and the part which to date has been the most widely utilized. The theater has a floor of quartered oak; there are 14 rows with 11 seats across, and the stage is 20 ft. in depth.

The social science laboratory is similar to the type of room used by the Foreign Service School of Georgetown University. A Gothic



The gymnasium is a large, sunny room which may be divided by a great rolling curtain into separate instructional areas for boys and girls.



● How to make school equipment last

You already know that the wise spending of school money is a feather in your cap . . . and that school equipment must be practical from every angle. But do you figure it this way—that the real test of equipment is how much it costs per year it is in use? Long life for school equipment means that it is designed and built right in the first place and that it holds up under punishing use.

That is why Walrus keeps inventing little improvements as plus-values to make its laboratory and vocational furniture last a long time. Recently a new acid-resisting wood finish has been perfected, to keep Walrus furniture clean and new-looking, in spite of practically any acid to which it may be exposed.

And the new type leg shoe (illustrated above) makes it possible to attach Walrus laboratory, vocational and library furniture to wood, marble, tile, cement, or terrazzo floors, or left free and loose from the floor—less wear and tear, any way you look at it.

Clip coupon at right, and we'll send you a Walrus catalog. You owe it to yourself to investigate.

The Walrus catalog please.

Name_____

School_____

City and State_____

WALRUS MANUFACTURING CO., DECATUR, ILLINOIS

table running two thirds the length of the room with chairs, copied from those in the Yale University library, give a central setting for panel discussions. Writing benches on slightly raised platforms along each side of the room provided opportunity for note taking by pupils who may not be participating in a discussion. A rostrum at the front of the room provides for more formal debates. The room has an adjoining alcove for special research and study, as well as an especially devised 15-minute time-limiting clock which is controlled at the presiding officer's bench.

Not the least enjoyable of the school's adjuncts is the public-address system. The talk-back or "snoopervision" feature has been eliminated, however. Among the broadcasts enjoyed by the student body in their respective rooms were King George's address, the World Series, and the Drawing of Numbers for Selective Service. The pupils themselves may broadcast from six different locations throughout the building.

NEWS OF OFFICIALS

● Mr. Mark Frazier, a member of the school board at Shawnee, Okla., died suddenly at his home on November 26. He was elected a member of the board in 1933, and became president in 1935.

● The school board at Hartford, Conn., has reorganized with the re-election of Thomas G. Fraser as president; Roger B. Ladd as vice-president; and Mrs. Eleanor B. Kennelly as secretary.

● Mr. James E. Reynolds has been re-elected president of the school board at North Kingston, R. I.

● Mr. Morris J. Livingston, vice-principal of the Central School, Williamson, N. Y., has been elected superintendent of schools for the fourth district, Wayne County, N. Y.

● Supt. Frank C. Ransdell, of Kenton, Ohio, has been re-elected for a three-year term.

● Dr. Henry Graber has been re-elected president of the school board at Royersford, Pa.

● Mr. James F. Luther, of Antigo, Wis., has resigned to become superintendent of schools at Delavan. He succeeds Theodore J. Jensen, who has gone to Fond du Lac.

● Mr. Clarence R. Young, of Indianapolis, Ind., has been elected superintendent of schools at Middletown. He succeeds Wilbur Shirey, who has resigned.

● Mr. Oscar R. Baker, former superintendent of schools at Winchester, Ind., died at his home on November 14. He was 86 and had been retired since 1931.

● The Boston school board has voted to extend the leave of absence of Mr. Walter F. Downey, Commissioner of Education, pending his anticipated reappointment to the state position. Mr. Downey has been Commissioner of Education while retaining his position at the English High School.

● Supt. R. F. Flege, of Irving City, Ky., has been elected president of the Department of Superintendence of the Kentucky Education Association for the next year.

● Mr. Foss Elwyn, formerly principal of the high school at Sault Ste. Marie, Mich., has been elected superintendent of schools. He succeeds the late George G. Malcolm.

● Supt. H. H. Ilsley, of Spirit Lake, Iowa, has been re-elected a member of the Iowa High School Athletic Association.

● Mr. C. W. Peck has been named president of the school board at Franklin, Pa.

● Dr. E. H. McCue has been elected president of the school board at Mahonoy City, Pa.

● Mr. Frank W. Magill has been re-elected president of the school board at Danville, Pa.

● Mr. Horace J. Hartranft has been named president of the school board at Bellefonte, Pa.

Officers Illinois School Board Association, 1940–41

The Illinois School Board Association, which held its convention on November 15 and 16, in Springfield, elected the following officers. Left to right are: board member, B. B. Voris, Waterloo; board member, M. H. Detweiler, Ziegler; board member, Gilford H. Hill, Lombard; research director, Glenn K. Kelly, Riverside; president, Harold W. Norman, Bannockburn; retiring president, Ira E. Garman, Bellwood; vice-president, Rev. R. M. Luedde, Gibson City; executive director, A. D. McLarty, Springfield.

Out In Front For 31 Years

DA-LITE QUALITY

Reg. U.S. Pat. Off.

Has Stood The Test Of Time

Down through the years, Da-Lite has continually pioneered improvements in screen surfaces and mountings, that make for still brighter pictures and easier projection. The Da-Lite Challenger, shown here, is the most convenient of all portable screens. It can be set up anywhere in 15 seconds. It is the only screen to have square tubing in the center rod of the tripod and the extension support for perfect alignment of the entire screen surface. 12 sizes from 30″ x 40″ to 70″ x 94″ inclusive.

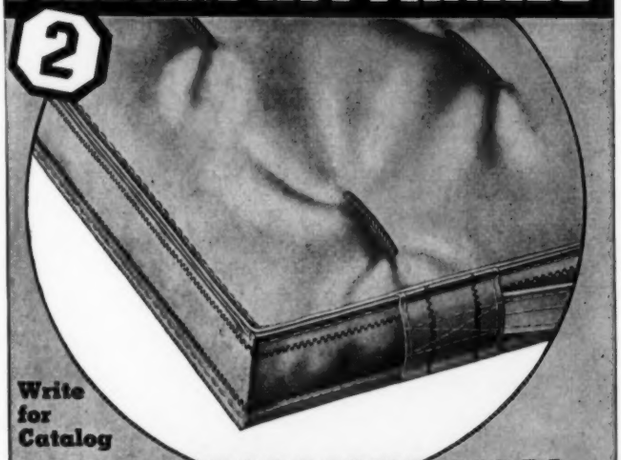
The Da-Lite line includes surfaces, sizes, and mountings to meet every requirement. Ask your supplier for a copy of the 48 page Da-Lite catalog or write direct.

DA-LITE SCREEN COMPANY, INC.

Dept. 1ASB, 2723 North Crawford Avenue, Chicago, Ill.

MEDART HIT PARADE

2



Write for Catalog

New FOBAFIMI SISAL GYM MATS

The greatest improvement in Mat construction in 50 years . . . Medart Gym Mats with Fobafimi Sisal Filler Pad are clean, sanitary, and easy to keep that way . . . Heavy duty construction throughout . . . Next time, insist on Medart Fobafimi Sisal Mats for a new experience in resiliency . . . Write for complete details concerning this radically new and improved mat.

Fred MEDART Mfg. Co.

3530 DeKalb Street St. Louis, Mo.

ECONOMY, TRUE AND FALSE, IN SCHOOL BUILDINGS

(Concluded from page 22)

hood. The center entrance was designed to attract the interest of all passersby, and the offices were separated from the foyer by clear glass to make contacts between pupils and public as easy and natural as possible. Built-in seats and exhibit cases and attractive bulletin boards, good pictures, an attractive color scheme and the warm personal contacts of the office make this foyer irresistible to pupils, parents, and visitors. The ends of the corridors are kept open, free of stairways and other obstructions, to let in light and give views of the landscaped school grounds. The kindergarten and first-grade rooms contain extra units of space and coatrooms. For the other classrooms, lockerobes are built into the corridor walls to hold the pupils' wraps and to save the wall space for reading cases, exhibit cases, teachers' closets, bulletin boards, and storage of classroom properties. The ceramic tile wainscot in the corridors between banks of lockers is enhanced with pictured tiles depicting familiar characterizations from child literature. The window sills are designed for potted plants and growing specimens for study. The classrooms are equipped with tables and chairs, and a crafts room is provided for handiwork projects, having an electric stove, built-in ironing board and storage cabinets, as well as bench space, making this room adaptable for lunch and cafeteria during the noon hour. The crafts room is also provided with a separate outside entrance to accommodate the summer playground program, Boy Scout and 4-H Club groups. The gymnasium-auditorium is likewise equipped with separate outside entrance and kitchenette for community use.

The effect of this building on City *B* was electrical. Exhibits of the children's work at the end of the first year revealed results beyond the belief of fond parents and skeptical taxpayers, if indeed any remained. Petitions poured into the board of education to erect another such building for the opposite side of the city. A new site was purchased and the entire city gave unanimous endorsement to the necessary bonds two years later when PWA again became available. This second building provides 15 classrooms with gymnasium-auditorium and cost $135,000.

True Economy Is Recognized

This story would be irrelevant were it not for its counterpart. City *A* scored no such hit with its building. Because of the lack of economy in the construction of the school, there arose among a group of taxpayers, a feeling of resentment which now constitutes a formidable opposition to bond issues for another much-needed building.

Three distinct factors appear in these stories taken from the contemporary history of school-building construction:

First, that an important factor of economy is to be derived in the first cost of construction, purely from planning and design.

Second, that *adaptation to need* adds intrinsic values to school buildings which dollars cannot do.

Third, that regardless of who says what, tightfisted taxpayers instinctively know whether or not public expenditures are economically made and construe their support accordingly.

It is interesting to note that economy was effected by City *B* without resorting to temporary or inferior construction. Each of these buildings will serve satisfactorily for at least a century in so far as physical depreciation is concerned. City B has gone one step farther, however, and has constructed its building on a unit plan which not only provides for additions, if and when required, but also provides for making any changes in room sizes or in the built-in features of any room as may be desirable to change or improve its function.

The difference in the values accruing to these two cities in erecting new school buildings, in almost adjacent localities, is *very great indeed*. Some of the important questions raised bearing on economy will be discussed in a future issue.

PERSONAL NEWS

● Mr. L. P. Goodrich, superintendent of schools of Fond du Lac, Wis., has accepted a position as assistant superintendent of schools at Milwaukee, Wis.

● Mr. Frederic Ernst, formerly head of the high school division of the New York City schools, has been appointed as director of the vocational schools as well as of the high school. He succeeds the late William E. Grady, who had been in charge of the high school division.

● Mr. Sidney Boswell, formerly principal of the Glynn Academy, in Brunswick, Ga., has been appointed acting superintendent of schools. He succeeds George W. Wannamaker, who has been called for military service.

MEDART HIT PARADE

3

Write for Catalog

GOAL-HI AMERICA'S NEW Indoor & Out-of-Door PLAY GAME

America's new play-game . . . For girls — for boys . . . Played indoors or out-of-doors . . . For small teams or entire (large) gym classes or play groups . . . Only one inexpensive Official Goal-Hi Standard (and a ball) is required . . . Complete Rules Book free with each standard . . . "For health and fun and exercise, play Goal-Hi all year 'round." Complete information upon request.

Fred MEDART Mfg. Co.
3530 DeKalb Street St. Louis, Mo.

Select

RUNDLE-SPENCE

SANITARY DRINKING FOUNTAINS

Many types and styles of Wall and Pedestal Fountains are described in our catalog. Write for your copy.

Sanitary Drinking Proof Against Contamination
Automatic Pressure Stabilizer
Squirt Proof
Easy to Install
Economical in Use
Beauty in Design

RUNDLE SPENCE MFG. CO.
445 N. 4th Street Milwaukee, Wisconsin

AVENAL BREAKS WITH TRADITION

(Concluded from page 24)

Probably, the one factor that made possible the development of a "different type" of classroom in Avenal was the fact that it is the result of cooperative thinking. From the inception of the idea, to the day the building was opened and the children came through the front door to stand for a moment speechless and then make some statement of sincere approval, the building plan has been the outgrowth of everyone concerned having a part in the development of the idea.

The "prime mover," or initial cause for a break with the traditional type classroom was the definite dissatisfaction of the classroom teachers with the type of room in which they were working. Although several were teaching in wood-frame bungalows, the most dissatisfied teachers were those in a new brick building designed after the so-called activity-type classroom. These rooms had either east or north lighting, were 23 by 37 ft. in area, with a teachers' supply closet and a pupils' work alcove at one end.

The teachers disliked these rooms for several reasons:

1. The most frequent criticism was that the work alcove was too small, thus eliminating more than one pupil working at a time.

2. Because the room was much longer than it was wide, the teacher was limited in her supervision of the activities of the class.

3. No area was available for a library or reading circle, and still have any space for a project.

4. On the window side of the room there was too much light. On the blackboard side there was not sufficient light.

5. Too much space was taken up by blackboards, thus eliminating space for work.

6. Supply storage was not conveniently arranged either for the pupils or the teacher.

7. The design of the room was not cheerful because of the high ceiling and undecorated front wall space.

Although none of the teachers had made any attempt to put into a drawing their idea of a classroom, all of them wanted a room that had an even distribution of light and ample closet space that was accessible to the teacher without having to disrupt the activities of the class. The satisfactory room must be cheerful and so arranged that both manual as well as academic activities could be engaged in at the same time. Out of this need, there developed an entirely different classroom.

A few of the persons responsible for the development and building of the Avenal type of classroom were:

Frank Wynkoop, architect.

Dr. Charles Bursch, chief of the Bureau of Schoolhouse Planning, California State Department of Education.

Edward Shockley, inspector.

George Loorz, vice-President of the F. C. Stolte Company, contractor.

The teachers and principal of the Avenal Elementary School.

The school Board: A. M. Toler, president, Gail Carbiener, secretary; members, E. R. Orchard, Charles Ward, and E. P. Campbell.

Building Statistics:

The unit covers 12,532 sq. ft. of floor space with a cube space of 155,000 cu. ft. The contract price of the building was $68,210 making the square foot cost $5.50, and the cube cost 44 cents per cubic foot.

A single classroom has a clear floor space of 992 sq. ft. The construction is frame and stucco. The floor is of concrete slab covered with asphalt tile. The composition roof is coated with aluminum paint.

The exterior doors are metal-covered wood. The interior trim is Ponderosa Pine and enameled. All interior plaster is smooth and painted with washable paint. Classroom ceilings are 16 by 16 in. fiberboard, factory color coated.

Lavatory floors and wainscot are tiled.

Central heating boiler is in old building; a converter was installed for hot-water heat in new addition.

NEWS OF SCHOOL OFFICIALS

● Dr. Gereon Frederickson has been elected president of the school board at Iron Mountain, Mich.

● Mr. Clifford H. Bailey has been elected president of the school board at Coventry, R. I. He succeeds Earle P. Bainton.

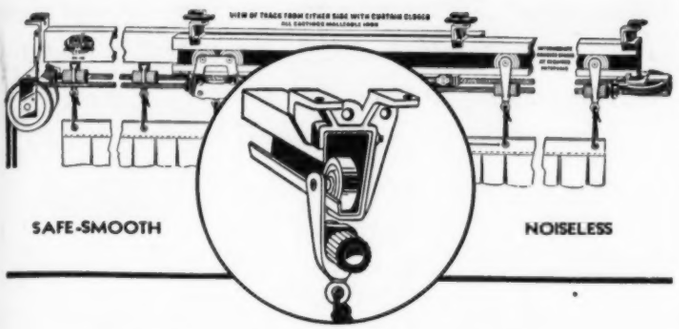
● The school board at Barrington, R. I., has reorganized with the election of Preston F. Arnold as president, and Mrs. Arthur L. Poorman as clerk.

● The school board at Portsmouth, R. I., has elected Henry F. Anthony as president, and Mrs. John Coggeshall as clerk.

● Mr. James Crowley has been appointed as temporary business manager of the schools at West Hartford, Conn., to succeed Major Hubert E. Johnson, who has been called for military service.

● Mr. Leo V. Carley has been elected president of the school board at West Warwick, R. I.

● Mr. Christian T. Andersen has been appointed to the position of assistant secretary of the board of education at Detroit, Mich. He succeeds the late Lester H. Rich. Mr. Andersen entered the employ of the public schools as a teacher in 1927, and had served for some time in the Division of Instruction. He was assistant director of statistics and publications, and in 1940 was made assistant director of educational expenditures.



The Track You Can Approve
WITHOUT FEAR OF CRITICISM

Vallen Tracks and Controls meet the demands for economy and dependability. Vallen is a pioneer in advanced features that provide smooth, noiseless, and safe operation. Throughout the world, curtains on Vallen tracks are lasting longer and performing better than ever before.

Write for literature and let our engineers help you.

VALLEN, INC., Akron, Ohio

MEDART HIT PARADE
4

Write for Catalog

BIKE RACKS FOR INDOOR AND OUT-OF-DOOR USE

Haphazard, dangerous and disorderly parking of bicycles has no place on or in school property . . . Medart Bike Racks solve that disturbing problem for all times . . . Hot galvanized throughout to resist rust, this modern and inexpensive school equipment may be used indoors or out-of-doors at will . . . fully described in the Medart Bike Rack catalog. Write for it.

Fred MEDART Mfg. Co.
3530 DeKalb Street St. Louis, Mo.

PLAN INTEGRATION IN HIGH SCHOOL BUILDINGS

(Concluded from page 28)

designed in anticipation of programs that do not yet exist. No one knows yet in detail what their ultimate form will be. But there are plenty of straws in the wind to show us the direction, and we may be fairly certain that if democracy persists in the United States the development of the secondary-education program will follow the lead already taken by elementary education, demanding a new conception of the interdependence of the various educational activities. The means which may be undertaken now in recognition of that development will in no way impede the job being done in education at the present time; yet they will make possible and encourage a forward step.

WILLIAM B. ITTNER: HIS SERVICE TO AMERICAN SCHOOL ARCHITECTURE

(Concluded from page 31)

in rapid succession through the Middle West, the North, East and the South. Being thus compelled to terminate his 19 years service for the St. Louis Board of Education in 1917, Mr. Ittner organized his own architectural and engineering force to care for his enlarged practice which had become national in scope. A total of 125 high schools were planned and executed during the next decade and a half. Individually, they range in cost from $92,000 to $1,250,000.

School-Building Programs

The planning and development of extensive school-building programs for cities followed educational and housing surveys of school systems. Such programs proved to be the most comprehensive of William B. Ittner's school-building experience. They included in each city both elementary and high schools, as well as expansions and modernizations. They also represented a diversification of service, consulting and associate, when communities desired local architects to participate. These programs ranged in cost from $400,000 to $10,000,000.

In the execution of the amazingly large amount of work that Mr. Ittner accomplished, it was only natural that he should call to his side able associates. They toiled through the years with him, shared his responsibilities, his joys, and his trials. Long before Mr. Ittner's death, they had formed an association which would carry on the high standards, the same ideals and the progressive thought that had originally made their office one of the best known in the country.

MINIMUM REQUIREMENTS FOR A HEALTH ROOM IN A SMALL SCHOOL

(Concluded from page 32)

Figure 1 shows a possible arrangement in one small school where the health program consists of an annual health examination (without removal of clothing) for each child, with follow-up work by the nurse, and care of all health emergencies during the school year. Figure 2 shows a plan recommended by the Division of Health Education of the State Department of Education of an eastern state. This plan meets the needs of a small school to a remarkable degree. The use of the same room by the physician and the dentist cannot be recommended. The dental clinic should be a separate, adjunct of the health suite. Figure 3 is a modification of Figure 1, to include dressing booths, where clothing is removed for the health examination. These must be provided in addition to the minimum 14 by 23 dimensions.

The health room should enjoy its proper designation in the administrative offices. In a survey of 92 schools having health rooms it was found that 18 titles were in use. Nurse's room was most popular, used in 35 schools. Medical room was second, used in 25 schools. If the simple words, nurse-physician-dentist, used singly or in any combination are used, the sign permits the terms nurse's room, doctor's room, et cetera, to be spoken by teachers and pupils without confusion and bestows upon the health room the dignity to which it is entitled.

NEWS OF OFFICIALS

- The board of education at Gonzales, Tex., has reorganized, with the re-election of two old board members. The officers elected are: President, CLARENCE T. TRAEGER; secretary, BOYCE PENROD; members, CECIL MORRIS, E. E. SMITH, JACK BLACKWELL, FRANK WILSON, and JOSEPH H. GRANT.
- MR. WALTER REIFFERT has been elected president of the school board at Kerrville, Tex.

DRAPERIES
RIGGING - SCENERY

MODERN
STAGE EQUIPMENT

MORK-GREEN STUDIOS
R. J. Mork
243 W. Congress St.
Detroit, Mich.

T. S. Green
1126 CHimes Bldg.
Syracuse, N. Y.

Savings that mean something with
Sengbusch School Inkwells

— made for your present desks

1. Practically indestructible — eliminating replacement expense.
2. Minimum ink evaporation cuts down supply costs.
3. Eliminate ink-stain damage — made of hard rubber, famous Sengbusch school inkwells are built to withstand abuse.

Equip your desks with Sengbusch inkwells. Write today for information on 90-day free trial offer. No obligation.

Sengbusch Self-Closing Inkstand Co.
418 Sengbusch Bldg. Milwaukee, Wis.

MILLER LOCKS are the
Answers to Any Lock Problem!

Click or sight operating. Automatic locking. MASTER KEYED IF DESIRED. Handsome in appearance. Dependable in operation. RED DOT No. 35 operates by click and sight, No. 36 by sight only. No. 1 finish is all-steel hasp cadmium plated, black face. No. 3 finish all-steel hasp, cadmium rust-proof. Natural color, lacquered face. All locks available in Master Key types at slightly higher prices. We also manufacture a built-in type Locker Lock, plain and master keyed. Specify MILLERS and BE SURE!

RED DOT No. 35 — Send for sample of lock you are interested in. WRITE US TODAY.

THE J. B. MILLER KEYLESS LOCK CO.
200 LOCK STREET KENT, OHIO

For

Better Stage Curtains

Write

UNIVERSAL
SCENIC STUDIO, INC.

1218-24 No. Fifth St. Milwaukee, Wis.

The Last Word In Sanitary Equipment

DUDFIELD DUSTLESS
ALL METAL CRAYON TROUGH
and METAL BLACKBOARD TRIM

Our improved metal dust tray with slotted sheet metal eraser cleaner is the best construction obtainable for wood or metal troughs.

"A slight rub on the screen, keeps the erasers clean."

DUDFIELD MANUFACTURING COMPANY
16 W. Kansas St. Liberty, Mo.

SCHERMERHORN TEACHERS' AGENCY Est. 1855
CHARLES W. MULFORD, Prop.
366 Fifth Ave., between 34th and 35th Sts., NEW YORK
Branch Office: 1836 Euclid Avenue, Cleveland, Ohio
A Superior Agency for Superior People
We Register Only Reliable Candidates
Services Free to School Officials
Member National Association of Teachers' Agencies

ALBERT TEACHERS' AGENCY
Room 1505-25 E. Jackson Blvd., Chicago
Established 1885—When in search of candidates, write or wire us. Care and promptness assured. Corr. Agencies: 535 5th Ave., New York City; Hyde Bldg., Spokane, Wash.
Member National Association Teachers' Agencies

MANUAL TRAINING BENCHES

PRACTICAL
DURABLE
ECONOMICAL

50 Different Models
A Bench for Every Purpose

Our benches are all made of maple wood mortised and tenoned joints glued and bolted. We do not use glued up lumber in the legs, rails or drawer fronts.

Write for full particulars
Manufactured by

THE CHRISTIANSEN COMPANY
2814-42 W. 26th St. CHICAGO, ILL. Makers of This Line Since 1897

GOOD IDEAS...
are worth Saving

Keep your copies of the AMERICAN SCHOOL BOARD JOURNAL in the NEW distinctive binder especially designed for your office or library use.

Easy to use, attractive, and holds twelve (12) issues — 2 complete volumes.

Sells at cost, $2.00, plus postage.
Send your order NOW!

American School Board Journal
Desk 1, Circulation Dept. Milwaukee, Wis.

VOGEL PATENTED SCHOOL CLOSETS

Are Money Savers

Vogel No. 10 School Closets in thousands of installations throughout the country have reduced maintenance costs, cut down overhead and practically eliminated repair bills.

Rugged construction, with fewer moving parts guarantees more efficient operation. A thorough, powerful flush on less than four gallons of water means further savings.

Furnished in two types: Vogel No. 10 (illustrated) Syphon action, vitreous china bowl, heavy bronze and nickeled brass hardware, enameled drum shaped pressure tank. Vogel No. 10-A, same specifications as No. 10 except for concealed pressure tank.

JOSEPH A. VOGEL COMPANY
Wilmington Delaware

MEDART HIT PARADE

5

Write for Catalog

Automatic Electric

Basketball Scoreboard & Timer

Smooth, streamlined, pleasing-to-the-eye exterior conceals a precision-built mechanism that is without equal . . . Large, easily read clock dial . . . Hair trigger quick and accurate score recording from control box to scoreboard . . . Place your local basketball games in the 'big time' — install a Medart Automatic-Electric Scoreboard and Time Clock in your gym. Catalog upon request.

Fred MEDART Mfg. Co.
3530 DeKalb Street St. Louis, Mo.

HARRISON'S NEW FIVE-YEAR HIGH SCHOOL

(Concluded from page 46)

and is efficient because of its accessibility to the auditorium where the assemblies, musical programs, and civic functions are presented. There is also a ready exit to the proposed athletic field. The isolation of the music rooms from the rest of the building plus soundproofing has minimized disturbance to other classroom work.

Classrooms are designed utilizing the maximum unbroken space for natural lighting, with aluminum trim for display, and blackboards, base of metal, rooms lined to wainscot height with washable cloth. The windows in each classroom are of aluminum, with soapstone sills and with rubber wainscoting under the blackboards. Each room in the building is connected to the public-address system and is equipped with a telephone operated and controlled from the business office.

Pupil lockers are located in locker alcoves for centralization and control.

The lighting fixtures are all of the latest built-in flush type, carefully and scientifically designed to give adequate light without glare and afford protection to the eyes. There are over six miles of conduit pipe and twenty-five miles of wire installed.

Interesting architectural effects have been made possible by the use of glass blocks in the stair wells and around the entrance doors. Aside from their decorative value, they solve important light transmission problems in these important parts of the building in a particularly satisfying manner.

In addition to the rooms already mentioned, the building contains the following special rooms and units:

1. Domestic-science unit, containing kitchen, living room, bedroom and bath.
2. Industrial arts with finishing room, print, metal, wood and automobile shop.
3. A completely equipped darkroom for photographic work.
4. Cafeteria, kitchen and storage.
5. Science unit consisting of one advanced science room, and two elementary science rooms with storage space and an office for the instructor.
6. Office practice and typing rooms which can be made into one room for visual-education purposes through the use of a folding partition.
7. Bookkeeping room.
8. Drawing and craft rooms.
9. Health rooms containing dressing booths, record room and doctor's and nurse's office.
10. Men's and women's teachers' rooms.
11. Corrective room.
12. Recreation room.

Including classrooms, special rooms, and offices, there are over 50 rooms in the building.

The heating and ventilating system is unique in many ways. The steam is generated by three 60-in. steel boilers fired by three fully automatic oil burners. These burners are designed to burn No. 6 bunker fuel oil which is very thick and has to be heated before delivery to the school. It has a very high BTU value and is half the price of regular fuel oils. The system is known as a down-feed system which means all the distributing mains are in the attic and the steam feeds down to all radiators. The condensation returns are below the first floor and run by gravity back to the boiler. This design eliminates the use of pumps which are costly to purchase and costly to operate. Fuel economy results from dual control and zone control. Dual control automatically lowers the temperature in the building at night, week ends, or vacation time to any temperature desired and maintains this temperature throughout this period. The zone control divides the building into four parts, namely: auditorium section, gymnasium section, and two classroom sections, so that any of the above sections can be used without affecting any other part of the building.

The building has been constructed on a plot of land consisting of 20 acres. By thoughtful planning, the board of education recently acquired an additional five acres which will be utilized as an athletic field and for which a very comprehensive plan for the future has been laid out, completely embracing the recreational needs of the students of the high school.

District No. 6, Harrison, N. Y., is justly proud of its new five year high school which was occupied for the first time last September.

PERSONAL NEWS

● Mr. Theodore J. Jenson, of Delavan, Wis., has been elected superintendent of schools at Fond du Lac, where he succeeds L. P. Goodrich. Mr. Goodrich has accepted a position on the school staff at Milwaukee.

● Mr. John V. Beamer, of Wash, Ind., has been elected president of the Indiana Town and City School Administrators' Association. Supt. H. E. Binford, of Bloomington, was named first vice-president, and Supt. C. V. Haworth, of Kokomo, was chosen secretary-treasurer.

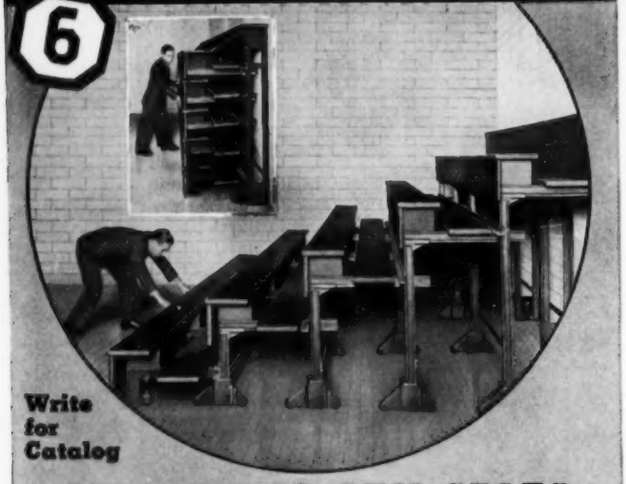
● Supt. H. S. Freeman, of Mobridge, S. Dak., has been elected president of the South Dakota Education Association.

● Mr. Clyde C. O'Dell, of Miami and Sand Springs, Okla., has been elected superintendent of schools at Claremore.

● Mr. E. H. Enger has been appointed business manager of the Minneapolis schools during the absence of J. F. Gould, who has entered the U. S. Army.

MEDART HIT PARADE

6



Write for Catalog

TELESCOPIC GYM SEATS

Originated by 'Medart' . . . Safe to use, safe to operate . . . An installation of Medart Telescopic Gym Seats assures absolute spectator visibility — an all important factor that will make your gymnasium pay a profit! Let us survey your gym and submit an accurate detailed recommendation. No obligation to you. Catalog upon request.

Fred MEDART Mfg. Co.

3530 DeKalb Street St. Louis, Mo.

The way to finer floors TENNANT Floor Maintenance System

FINISHING MAINTENANCE

Many progressive school officials purchase a TENNANT Machine for original treatment of floors and their subsequent maintenance.

Heavy Traffic Floors in schools and colleges throughout the country are kept durable and attractive indefinitely with the TENNANT SYSTEM.

There are Tennant-Maintained floors in your locality. Our field representative will inspect your floors and make recommendations, without obligation. Write today for full information.

G. H. TENNANT COMPANY

Established 1870

2536 North Second Minneapolis, Minn.

SCHOOL-BUILDING CONSTRUCTION

During the month of November, 1940, contracts were let for 280 educational and science buildings, containing a total floor area of 1,600,000 sq. ft. Dodge reported that these buildings in 37 eastern states have a contract valuation of $8,493,000.

In 11 states west of the Rockies, contracts were let for 20 new school buildings, to cost $847,400; 26 additional buildings were reported in preliminary stages, at a total valuation of $1,959,350.

SCHOOL-BOND SALES

During the month of November, 1940, school bonds were sold in the amount of $938,989, at an average interest of 2.18 per cent. Tax-anticipation notes and short-term paper was sold, in the amount of $3,071,000.

NEW BUILDING PROGRAM AT GONZALES, TEXAS

The board of education at Gonzales, Tex., has undertaken a new school-building program, to include a vocational agriculture classroom, office, and storeroom building, a two-room addition to an elementary school, an enlargement of the Negro school, and an auditorium and classroom wing for the high school.

The building program is being financed with a school-bond issue of $90,000 and a building reserve fund of $5,000.

The expansion became necessary because of the enlargement of the school system through the adoption of a 12-grade system and the addition of a number of rural pupils.

BUILDING NEWS

♦ Sandusky, Mich. The board of education has adopted a new policy in its fire-insurance policies, providing for the combining of the fire and cyclone policies. With the policies operating on a three-year basis, it means that a saving of $200 will be effected in premiums to be paid.

♦ Springfield, Mass. The school board has approved plans for two building projects, a new school administration building and a new elementary school.

♦ New Orleans, La. The Orleans Parish school board has called for bids for its school fire insurance, covering all the school properties, and amounting to $16,773,427. Formerly, the board accepted the premium rate set by the insurance rating board of the state. Three years ago, the board set its own rate of $3.44 for each $1,000 for a three-year period, and as a result paid out in premiums $57,700. It is believed that a still lower rate can be obtained by advertising for bids.

♦ Haskell, Tex. The school board has begun a school-building program to improve the school plant through a PWA project, estimated to cost $100,000.

♦ Parkchester, N. Y. Plans have been started for the construction of an addition to the Bronx Vocational High School. The cost of the building will reach $985,000.

♦ Crowley, La. The school board has completed plans for the construction of a new high school, to cost $400,000. The building will be financed with a PWA grant and a bond issue of $160,000 provided by the school district.

♦ Tyler, Tex. The board of education has completed a new auditorium for the senior high school, at a cost of $180,000. To take care of an increased enrollment during recent years, the board has spent more than one million dollars for permanent improvements. The completion of the auditorium brings to a close a ten-year building program. Plans are being made to adopt a twelve-year program in the schools.

♦ Marshfield, Wis. The board of vocational education has voted to take out temporary term blanket insurance on the school property until a definite policy of theft insurance can be provided. The short-term policy protects the school property up to $1,500. Tools and materials valued at $500 were reported stolen from the department a few months ago.

♦ Newport, R. I. The school board has decided to begin another study of the school plant. The study will be made by a committee representing the school board, the city council, and the planning board of the city, and will seek to determine which buildings are useless in their present condition, which are inadequate, and which are desirable.

♦ Olney, Tex. Construction work has been started on an elementary school, to cost $100,000. The building will be financed with a WPA grant.

♦ Sycamore, Ohio. Construction work has been started on a new school, to cost $200,000.

♦ Huntington, Tex. Construction work has been started on the new high school, to cost $75,000.

♦ Memphis, Tex. The school board has completed a modern home-economics cottage and a farm workshop. The buildings will be used to train rural boys for work in connection with the National Defense Program.

♦ Pittsburg, Tex. The board of education of the school district has completed the erection of a gymnasium and classroom building, erected with the aid of WPA funds. The building was erected at a cost of $45,000.

♦ Madison, Wis. The school board has approved a suggestion, calling for a reorganization of the business office and business procedure. A committee has been appointed to undertake the work.

♦ Newport, R. I. The school board has approved a plan to have NYA youth perform traffic duties near public school buildings. The action was taken because of the shortage of police officers to cover all points.

♦ Caldwell, Kans. The school board has installed a public-address system in the school office. The system controls the loud-speaker units in the different classrooms.

♦ Spokane, Wash. The school board has begun work on a proposed school-building program, which provides for improvements to 26 school buildings. The total cost of the program will reach $164,000, of which $134,000 will be taken from the proceeds of a bond issue.

PRODUCTS CHECKING LIST FOR SOURCES OF SUPPLY, (Continued)

200 SEWING MACHINES
201 SHOP EQUIPMENT
Delta Mfg. Co.
Yates-American Machine Co.
201-1 SHOWERS
Crane Co.
Powers Regulator Co.
202 SIGNAL SYSTEMS
Holtzer-Cabot Electric Co.
International Business Machine Corp.
National Time & Signal Corp.
Standard Electric Time Co., The
203 SLATE BLACKBOARD
Natural Slate Blackboard Co.
204 SLATE STRUCTURAL
205 SNOW PLOWS
Jacobsen Mfg. Co.
205-1 SOUND DEADENING MATERIALS
Armstrong Cork Co.
Celotex Corporation
Johns-Manville Sales Corp.
U. S. Gypsum Co.
Wood Conversion Co.
206 SOUND EQUIPMENT
Holtzer-Cabot Electric Corp.
International Business Machines Corp
RCA Mfg. Co., Inc.
Universal Sound Projector — Div. of Sentry Control Corp.
The Webster Company
207 SOAP AND SOAP DISPENSERS
Beckley-Cardy Co.
Colgate-Palmolive-Peet Co.
Hillyard Chemical Co.
Huntington Laboratories
Imperial Brass Mfg. Co.
Vestal Chemical Company
208 SOUND PICTURES
Bell & Howell Co.
Holmes Projector Co.
RCA Mfg. Co., Inc.
Universal Sound Projector Div. of Sentry Safety Control Corp.
Victor Animatograph Corp.
209 SPRINKLER SYSTEMS
210 SPRINKLER SYSTEMS, LAWN
211 SQUEEGEES
Tennant Co., G. H.
211-1 STAGE EQUIPMENT, ETC.
Mork Green Studios
Universal Scenic Studios
Vallen, Inc.
212 STAINLESS STEEL CABINETS
213 STAIR TREADS, SAFETY
National Terrazzo & Mosaic Assn.
214 STATISTICAL MACHINES
Burroughs Adding Mach. Co.
214-1 STEEL CABINETS
Lyon Metal Products, Inc.
Medart Mfg. Co., Fred
215 STEEL CHAIRS
American Seating Co.
Hamilton Mfg. Co.
Kewaunee Mfg. Co.
Lyon Metal Products, Inc.
Peabody Seating Co., The
216 STEEL DOORS
Detroit Steel Products Co.
217 STEEL ROOF DECK
Detroit Steel Products Co.
218 STEEL SHELVING
Lyon Metal Products, Inc.
Medart Mfg. Co., Fred
219 STOKERS
220 STOOLS, STEEL
Hamilton Mfg. Co.
Kewaunee Mfg. Co.
221 STORAGE CABINETS
222 SWIMMING POOL EQUIPMENT
Mitchell Mfg. Co.
223 SWIMMING POOL SANITATION
224 TABLES
Arlington Seating Co.
American Seating Company
Hamilton Mfg. Co.
Kewaunee Mfg. Co.
Kimball Co., W. W.
Irwin Seating Co.
Mitchell Mfg. Co.
National School Equip. Co.
Norcor Mfg. Co.
Peabody Seating Co., The
Peterson & Co., Leonard
Remington-Rand, Inc.
Sheldon & Co., E. H.
Walrus Mfg. Co.
225 TABLETS BRONZE
226 TEACHERS AGENCIES
Schermerhorn Teacher Agency
227 TELEPHONE SYSTEMS
Holtzer-Cabot Electric Co.
International Business Machines Corp.
Standard Electric Time Co., The
228 TEMPERATURE REGULATION
Barber Colman Co.
Johnson Service Company
Minneapolis Honeywell Regulator Co.
Powers Regulator Co.
229 TERRAZZO
National Terrazzo and Mosaic Assn.
230 TILE ACOUSTICAL
(See acoustical material)
231 TILE CORK
Armstrong Cork Co.
232 TILE RUBBER
Goodyear Tire and Rubber Tile
233 TIRES
Goodyear Tire and Rubber Co.
234 TOILET PAPER
235 TOILET PARTITIONS
Pittsburgh Plate Glass Co.
236 TOOLS, POWER
Delta Mfg. Company
Yates American Machine Co.
237 TOWELS, PAPER
Brown Co.
238 TREADS
239 TRIM METAL
240 TYPEWRITERS
Burroughs Adding Mach. Co.
International Business Machines Corp.
Smith & Corona Typewriters, L. C.
Underwood-Elliott Fisher Co.
241 UNIT HEATERS
(See heating and ventilating systems)
242 UNIT VENTILATORS
(See heating and ventilating systems)
243 VACUUM CLEANING SYSTEMS
Hild Floor Machine Co.
Spencer Turbine Company
Sturtevant Co., B. F.
244 VACUUM HEATING SYSTEMS
Crane Co.
245 VALVES — FITTINGS
Crane Company
Dunham & Co., C. A.
Sloan Valve Co.
Vogel Co., Jos. A.
246 VALVES, SAFETY WATER MIXING
Powers Regulator Co.
247 VARNISHES
Hillyard Chemical Co.
Huntington Laboratories
Sonneborn Sons, Inc., L.
Vestal Chemical Co.
248 VARNISH REMOVER
Tennant Co., G. H.
248-1 VENETIAN BLINDS
Luther Draper Shade Co.
249 VENTILATORS
(See heating and ventilating systems)
250 VISIBLE RECORD KEEPING EQUIPMENT
Remington Rand Inc.
251 VISUAL INSTRUCTION EQUIPMENT
Bausch & Lomb Optical Co.
Bell & Howell Co.,
RCA Mfg. Co., Inc.
Universal Sound Projector Div. of Sentry Safety Control Corp.
Victor Animatograph Co.
252 VOCATIONAL FURNITURE
Christiansen Co.
Hamilton Mfg. Co.
Kewaunee Mfg. Co.
Kimball Co., W. W.
Peterson & Co., Leonard
Sheldon & Co., E. H
Walrus Mfg. Co.
253 VOCATIONAL SHOP EQUIPMENT
Delta Mfg. Co.
Yates-American Machine Co.
253-1 VON DUPRIN SELF-RELEASING FIRE EXIT DEVICES
Vonnegut Hardware Co.
254 WARDROBES, PORTABLE
Vogel-Peterson Co., Inc.
254-1 WARDROBES, WOOD
Evans Co., W. L.
255 WARDROBES, STEEL
Lyon Metal Products, Inc.
Medart Mfg. Co., Fred
256 WASHFOUNTAINS
Bradley Washfountain Co.
257 WASHROOM EQUIPMENT
Bradley Washfountain Co.
Chicago Hardware Foundry Co., The
Crane Co.
Rundle Spence Mfg. Co.
Powers Regulator Co.
Sloan Valve Mfg. Co.
Jos. A. Vogel Co.
258 WASTE PAPER BASKETS
Solar Sturges Mfg. Co.
259 WASTE RECEPTACLES
Solar-Sturges Mfg. Co.
260 WATERPROOFING
Sonneborn Sons Co., L.
261 WAXES, FLOOR
(See Floor Waxes)
262 WEATHERSTRIPPING
263 WINDOWS
Detroit Steel Products Co.
264 WINDOW SCREENS
Detroit Steel Products Co.
265 WINDOW — SHADES
Beckley-Cardy Co.
Draper Shade Co., Luther O.
Du Pont de Nemours & Co., E. I.
266 WOODWORKING MACHINERY
Delta Mfg. Co.
Yates American Mach. Co.

SCHOOL BUYERS INFORMATIONAL SERVICE

On products advertised in the AMERICAN SCHOOL BOARD JOURNAL, your request directly to these advertisers will bring immediate response. If you are interested in a number of products, your request for information, catalogs, prices, or salesman's call, can be sent to our Subscribers' Service Bureau, which acts as a clearing house for school buyers and manufacturers. In this way your single request to our Subscribers' Bureau will secure response from a number of responsible manufacturers. Use your own letterhead or clip and mail the form attached.

HOW TO USE. For convenience, the product listings are alphabetically arranged and and keyed by numbers. Simply insert the "Key Number" of the product or products you are interested in, sign, detach and mail.

PRODUCTS NOT LISTED

On material, equipment, or supplies not included, list these products by name under "Special Information" on the form attached,or in yourletter.

J 1-41

AMERICAN SCHOOL BOARD JOURNAL Subscribers' Service Bureau

We are interested in the products indicated by your "key numbers" listed below, and will appreciate receiving the information requested, promptly.

(Check) Catalogs ☐ Specifications ☐ Mfrs. Address ☐

Special Information: _____

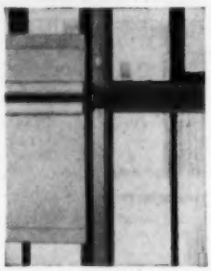
Name _____

Title _____ School _____

Address _____

City _____ State _____

TIME TO RESHADE WITH DRAPER'S SIGHT-SAVERS!



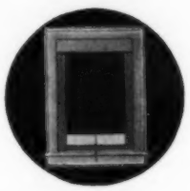
Vertical Light Shield for Draper "V" Double Roller Shade
Just as the horizontal shield keeps out the light from between the rollers, now the Vertical "V" Light Shield illustrated above, keeps out the light gaps from the sides of the shades.

Replace the unattractive, worn out shades and notice the difference in classroom efficiency! Draper Sight-Saving Shades are made from Dratex cloth—the functional material designed to evenly diffuse and let in all the light, yet keep out harmful glare.

A regulating feature permits Draper Shades to be lowered from the top or raised from the bottom. This permits only the restful, nonglaring top light to come in and provides proper ventilation without any annoying shade-flapping.

These classroom beautifiers reduce shade maintenance costs to a fraction, yet they cost no more than ordinary shades.

The Draper X-L Window Shading Unit, for any light opening over 9 ft. wide, avoids the use of unwieldy and impractical shades of large size for multiple windows, glass block walls, etc.



Ask about Draper Darkening Shades for Visual Education Rooms.

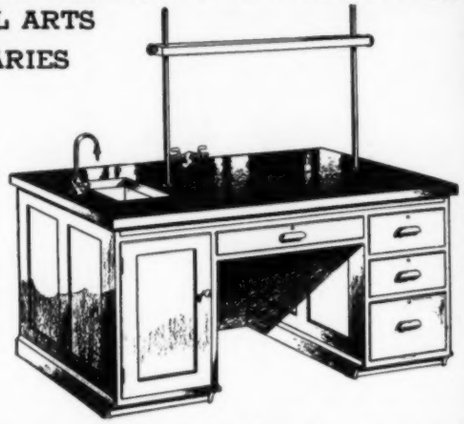
LUTHER O. DRAPER SHADE COMPANY
SPICELAND Dept. AA1 INDIANA

PETERSON'S FURNITURE
FOR LABORATORIES, HOME ECONOMICS INDUSTRIAL ARTS and LIBRARIES

Proved Best by the Test of Time

• • •

Fifty Years' Experience Behind Every Item!



QUALITY ALWAYS COMES FIRST

Allow Us to Help You Plan Your Science Rooms

Only the finest available materials and workmanship are good enough for Peterson products. Peterson designers keep abreast of school advancements, creating furniture to meet the exacting needs of the modern science room and laboratory.

Because of its surpassing excellence Peterson Furniture has been the outstanding choice of school managements everywhere. They know, through experience that in the long run, Peterson Furniture actually costs less.

Send today for complete catalog.

LEONARD PETERSON & CO., Inc.
1222-34 Fullerton Ave. Chicago, U.S.A.

STANDARDS OF SCHOOL BUILDING CONSTRUCTION

(Continued from page 61)

basement rooms must be provided, they should be finished on the inside with masonry to a point at least one foot above the grade. No window sills should come closer than one foot to the grade. All exterior walls should be waterproofed on the outside. Only mastic floor, quarry tile, or terrazzo should be laid on the ground slab. No wood should come in contact at any point with ground slabs.

The use of glazed or enameled bricks in corridors, toilets, washrooms, and cafeterias cost relatively little more than the substitution of cheaper masonry units or plaster and paint. The plaster-and-paint job means continual maintenance so long as the building exists. Some standards that should be observed in building wainscoting and walls for these spaces are: Use only glazed or enameled tile in such spaces as corridors, toilets, washrooms, and cafeterias. If the enameled tile with tight joints is used, smaller sizes may safely be used. From the standpoint of cost, it is sometimes less expensive to use tile as structural units rather than as veneer units.

Quarry tile or terrazzo floors in corridors and toilets cost more initially than concrete floors or wood floors, or concrete floors with mastic tile or linoleum over them. The maintenance cost, however, is much less. It should be noted, however, that mastic tile, linoleum, or rubber tile provide a much quieter corridor than hard tile or terrazzo flooring.

It costs more to build parapet walls and other exposed masonry walls with through wall flashings that effectively guard against leaks than to build straight masonry walls, but there is no easy way of satisfactorily correcting leaking brick walls, except by hiding the texture of the brickwork, and such leaking walls are causes of heavy maintenance and headaches to all concerned. There seems to be no essentially necessary reason why the "bucket" or "swimming-pool" type of roof and parapet walls should be constructed, but such is the vogue, with almost certain heavy maintenance costs as a result. If we must continue to build parapet walls, we should certainly provide copper and fabric flashings in accordance with good construction details to effectively guard against leaks.

Better Materials Pay

It costs more to provide copper or wrought-iron pipe for water supplies and hot-water lines, but the difference in cost is soon absorbed by the maintenance costs that follow when steel pipe is used. Some standards that should be followed in connection with water supplies and hot-water lines are that all water supplies should be either copper or wrought-iron pipe. All hot-water supplies should be either copper or wrought-iron pipe, preferably copper. All pipe carrying salt-water solutions should be of red-brass pipe. All drains to laboratories should be of acid-resisting pipe. All steam heating returns concealed or underground should be of wrought-iron pipe.

There is a wide variety of troublesome maintenance problems arising from the misuse of materials or from the use of cheap materials that can only be referred to in a general presentation of this subject, such as large glass in windows or doors; cheap hardware; small window muntins; ponderosa pine sash and window frames; lightweight steel sash; composition blackboards; ferrous metals for valleys, gutters, and downspouts; cheap, improperly applied paint; ferrous material for flashings; cheap built-up roofs; woodwork in contact with or close to the ground; small roof drains and too few in number; sloping roof with no provision for ice and snow guards; inadequate walks and hard-surfaced play areas; tanks in connection with water closets; lack of provision for floor drains in toilets; wood and metal toilet stalls; etc.

There have been many worth-while articles written and many valuable studies made on the subject of improved methods of maintenance and means of reducing maintenance costs. A review of current literature dealing with school maintenance problems reveals that in practically every issue there is some worthwhile contribution on this subject. These contributions are in many cases the results of careful study and application of engineering principles to maintenance problems. These very worth-while contributions generally fall far short of accomplishing their desired results, however, and usually fail to carry over into actual practice, due largely to the fact that the conclusion and suggestions contained in these articles and studies have not received the official approval of authoritative groups or organizations as standard recommended practice. There is a large field of opportunity to make a distinctly valuable contribution in developing standards of construction and specifications affecting maintenance. If these standards are in turn supported by authoritative and official group or organization approval and adoption, they will serve as guides to architects and school authorities in the

LOOKING AHEAD
TO HIS FUTURE

Let him face the future confident that he has had the advantages of modern methods of teaching. Confident that his health has been insured by foresighted school buyers who insisted upon correct posture seating which promotes strong, healthy bodies.

See how Beckley-Cardy PREMIER desks can give these advantages to your young Americans. Movable—they are easily and quickly rearranged for co-operative group work. Scientifically designed—they encourage correct posture, lessen fatigue, and conserve eyesight. And you will find that the quality of workmanship and materials is unequalled anywhere near the price.

No. 1016 Premier Desk with lift-lid, double-slope top. Steel book box, slamproof hinges. Two-inch plus and minus adjustment. Deep saddle seat.

LET THESE CATALOGS HELP YOU

Write today for catalogs No. 70M and No. 140M illustrating and describing school furniture, blackboards, erasers, supplies and equipment.

BECKLEY-CARDY
1632 INDIANA AVENUE • CHICAGO

selection of materials, details of construction, and mechanical equipment for school buildings, that will in the course of years have pronounced effect toward reducing many of the complexities and unnecessary costs now involved in school-building maintenance.

BETTER DAYLIGHTING IN THE CLASSROOM

(Concluded from page 63)

shrinking. On the other hand, the ventilators are a nuisance unless they open and close easily and silently, and when desired. Their balance should be such as to require little effort to open, by teacher or child, thus inviting frequent adjustment to admit fresh air or to prevent drafts.

Adequate natural daylighting through proper fenestration then, should have an important place in modern standards for new school-building construction. But older buildings need not suffer; inadequate windows in them can easily and economically be replaced by contemporary windows that contribute much to the general welfare of school children, while effecting substantial savings for the window-maintenance budget.

FINANCE AND TAXATION

♦ South Milwaukee, Wis. A budget of $111,715 has been adopted by the school board for the year 1941. The board also approved an item of $3,400 for the recreation department.

♦ Ripon, Wis. The school board has adopted a budget of $101,229 for the year 1941. Of the total, $71,429 will be raised by taxation.

♦ Eveleth, Minn. The 1941 budget of the school board has been set at $500,940. The largest item is $246,601 for teachers' salaries.

♦ Augusta, Ga. The Richmond County board of education has adopted a budget of $698,677 for the year 1941. The largest item is $560,618 for teachers' salaries.

♦ La Crosse, Wis. The school board has approved a budget of $570,845 for the year 1941. This is an increase of $24,536 over the estimate for 1940.

♦ Oshkosh, Wis. The school board's budget for 1941 has been set at $569,156, which is an increase of $30,780 over the 1940 estimate.

♦ Madison, Wis. The school board has adopted a budget of $1,365,510 for the year 1941. Of the total, $1,025,150 will be raised by taxation.

♦ Brookline, Mass. The school board has adopted a budget of $1,087,380 for the year 1941. It includes an item of $244,330 for school-building expenditures.

♦ Columbus, Ohio. The board of education has voted to issue bonds for the construction of a $315,000 addition to the McKinley Junior High School, in Linden.

♦ Axtell, Kans. Plans have been completed for the construction of a new WPA school, to cost $90,000.

♦ Corpus Christi, Tex. The school board has selected a site for the new Junior College, to cost $150,000. Messrs. Brock, Roberts & Anderson are the architects.

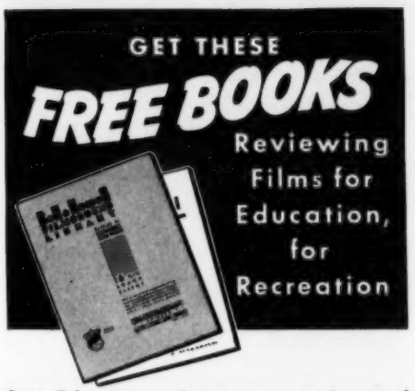
♦ Xenia, Ohio. Bids have been received for the construction of a three-story elementary school, to cost $120,000.

♦ Electra, Tex. A new elementary school, costing $48,800, was occupied for the first time in September, 1940.

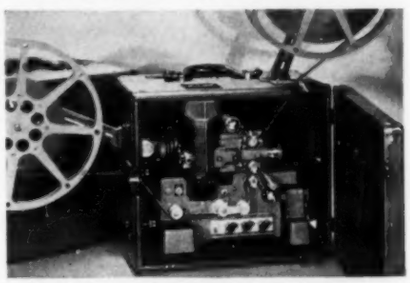
♦ Manitowoc, Wis. The board of education has asked the city council for $175,000, to be used in providing industrial-arts shops and a music room in the Lincoln High School.

♦ A two-room addition to the North Elementary School, at Mercedes, Tex., has been completed as an NYA project.

♦ San Angelo, Tex. The board of education has begun plans for the construction and equipment of a new junior college building, to be separate from the present senior high school building.



Just off the press are these two new catalogues of 16 mm. sound and silent films. They include hundreds of recent additions to the Bell & Howell Film Library, as well as previously catalogued films. And they are easier to use; first, because educational and recreational films are presented in separate books and, second, because educational films are now arranged by curricular divisions of subject matter. Free to school owners of 16 mm. projectors, 25c each to others. Send the coupon now.



FILMOSOUND "ACADEMY"

. . . the 16 mm. sound film projector that's been proved in the service of thousands of schools. Projects both sound and silent film and offers a wide range of audience-handling capacity, instant lens interchangeability, and provisions for using microphone and phonograph turntable. Long life and lasting dependability are assured by correct design, B&H metered lubrication, and by precision construction by the engineers who for 33 years have built professional equipment preferred by the world's leading studios. Price, $298.

A B&H VISUAL EDUCATION SPECIALIST IS NEAR YOU!

B&H Visual Education Specialists, distributed as mapped, are fully informed, capable, ready, both before and after purchase, to help you solve any school motion picture problem. This staff is but one expression of Bell & Howell's complete service to schools, which also includes supplying cameras and accessories.

Use coupon for specialist's service; for information

BELL & HOWELL COMPANY ASBJ 1-41
1814 Larchmont Ave., Chicago, Ill.
( ) Send Educational Film Catalogue.
( ) Send Recreational Film Catalogue.
( ) Send details on projectors for ( ) sound film; ( ) silent film.
( ) We now own ..... sound / silent 16 mm. projectors of ..... make bought from .....
( ) Have your nearest Visual Education Specialist call to help me with this problem:

Name .....
School .....
Address .....
City ..... State .....

PRECISION-MADE BY
BELL & HOWELL

After The Meeting

The Compliment

It was breakfast time at the house of the eminent professor, who had spent the major part of the night in his laboratory.

"My dear," he said to his wife, "congratulate me! I have discovered a gas of hitherto unheard-of density, and I'm going to name it after you!" — Vancouver Sun.

Unexpected Illustration

Examiner: "Does an effect ever go before a cause?"

Student: "Yes."

Examiner: "Indeed! Give me an instance."

Student: "A barrow wheeled by a man."

He Knew

The teacher was explaining the difference between the stately rose and the modest violet.

"You see, children," she said, "a beautiful well-dressed woman walks along the street, but she is proud and does not greet anybody — that is the rose. But behind her comes a small creature with bowed head. . . ."

"Yes, miss, I know," Tommy interrupted. "That's her husband." — Toronto Globe.

Improvement Possible

"How old is your father?"

"Thirty-eight, teacher."

"M'm, I must give you homework more suited to one of his age."

Showing Up Teacher

George: "Well, I showed up the teacher before the whole class again today!"

Hickey: "Yeh? Wise us up!"

"She asked me for Lincoln's Gettysburg address 'n' I had to tell her he never lived there. O! Ya shoulda heard the class laugh then."

Practical Reply

A young girl at the University of Missouri recently wrote her mother, air-mail special delivery, as follows:

Dear Mother, Please send me money for a new dress immediately. Have had several dates with Jimmy and have worn each of my dresses once. We have a date tomorrow night and I must have another dress right away. If you don't send the money, send a new dress. Thanks. Ruth.

Her mother answered:

Dear Ruth, Get yourself a new boy friend. — Chicago Tribune.

Object Lesson

Sarah was teaching a class in natural history in high school. One day she decided to impress upon her youthful charges the evil effects of alcohol. She dropped a worm into a glass of water. Then she fished the worm out and dropped it into a glass of whisky. The worm shriveled up and died.

"Now," asked Sarah, "what does this experiment prove?"

"It proves," answered one of the pupils, "that if you drink whisky you'll never have worms."

Gladly

Teacher: "Heyton, come here and give me what you have in your mouth."

Heyton: "I-I-I'd certainly like to, teacher. It's the toothache." — Philadelphia Bulletin.

THE ABSENT-MINDED PROF.

The ever delightful absent-minded professor made an appearance on Page 1 yesterday. This time he is Prof. Chester J. Prince, of William Jewell College, who went up to his attic to seal up the draughty places and, upon proudly surveying his handiwork, suddenly discovered that he had sealed himself in as well. This inevitably recalls the professor who laughed loudly as he was saved from drowning and explained his merriment by saying that he forgot he knew how to swim. And, of course, the classic about the absent-minded prof who held the egg in his hand and boiled his watch. — *St. Louis Post-Dispatch, St. Louis, Mo.*

School Buyers' News

New Nelson Booklets

The Herman Nelson Company, Moline, Ill., has issued two new booklets in its series on Nelson school products.

The first is "The New Nelson Air Conditioner for Schools," which records the achievements of the past 30 years in the manufacture of heating, ventilating, and air-conditioning equipment for schools. The Nelson air conditioner is as attractive in appearance as it is advanced in design and construction. It occupies a minimum of space and harmonizes well with other schoolroom equipment.

The second booklet is entitled, "The Story of Elgin," which describes the air-conditioner equipment in the Elgin Senior High School.

New Catalog of Skilsaw Tools

Skilsaw, Inc., 5033 Elston Ave., Chicago, Ill., has announced its new Catalog No. 42, which presents its complete line of portable electric tools.

The catalog lists and describes such tools as saws, saw blades, abrasive disks, drills, belt sanders, hand grinders, grinding wheels, bench grinders, blowers, floor sanders, and cup grinding wheels.

Announce Three New Fluorescent Lamps

The General Electric Company, through its lamp department at Nela Park, Cleveland, Ohio, has brought out three new "F" fluorescent lamps which may be had in several sizes and lengths. The new soft-white "F" lamps come in 15-, 20-, 30-, and 40-watt sizes and in 18-, 24-, 36-, and 48-in. lengths. Complete information on sizes and prices is available to school authorities and architects by writing to the General Electric Company at Cleveland, Ohio.

Combination Locks for Schools

Yale & Towne Mfg. Company has just issued a catalog circular, including a wide variety of combination locks, locker locks, and padlocks, all intended for school use. Copies are available to any school official who addresses the firm at Stamford, Conn.

Louis D. Lawnin Dies

Louis D. Lawnin, for many years president of the N. O. Nelson Mfg. Co., and recently chairman of the board of directors, died on Saturday, November 23, at his home in St. Louis.

Mr. Lawnin was a member of an old pioneer family of St. Louis and entered the employ of N. O. Nelson as a bookkeeper after his graduation from the Washington University Manual Training School. He successively held important offices in the firm until 1927, when he was elected president of the firm.

Mr. Lawnin was responsible for a good deal of the success of the firm in its manufacture and sale of school-plumbing equipment.

New Fluorescent Lighting Unit

The F. W. Wakefield Brass Company, Vermilion, Ohio, has announced two new Wakefield luminaire units for use with 100-watt fluorescent lamps.

The New Wakefield Fluorescent Unit for Schools

With the new 100-watt lamp, it is possible to extend the benefits of fluorescent lighting to high ceiling interiors and to obtain high levels of illumination. The reflectors of these units are provided with unusually deep louvers which provide an excellent cutoff. The interior of the reflector is finished in white enamel, while the external metal parts are plated and finished in satin cadmium.

These new luminaires have a pleasing appearance, are highly efficient, are easy to install, low in maintenance cost, and have a fundamentally low cost. Information is available to any school official who will write the Wakefield Company at Vermilion, Ohio.

New 48-Stick Alphacolor Box

The Weber Costello Company, Chicago Heights, Ill., has announced a new 48-stick Alphacolor Box No. 148, which comprises a complete sequence of 48 related colors. These colors are unusually brilliant, possess a velvety smoothness of texture, and are permanent and noninjurious.

Each stick rests in its own individual compartment and the box is a handsome, glossy black, a truly deluxe package.

Complete information is available by writing to the Weber Costello Company at Chicago Heights, Ill.

Announce New Blueprint Cabinets

The All-Steel-Equip Company, Aurora, Ill., has announced its new line of A-S-E Aurora blueprint cabinets, which are suitable for the orderly filing of tracings and blueprints used in schools and school-board offices.

Filing cabinet No. 1344, illustrated, is a combination 5-drawer and 3-drawer unit, which is

New All-Steel Unit Office Filing Cabinet

provided with strong locks, so that drawings may be kept safe. The firm manufactures both 5-drawer and 3-drawer units, which come in four sizes, and in various dimensions. Each cabinet is finished in olive green baked-on enamel. All surfaces are heavily coated for resistance to moisture. Grained wood finishes in walnut or mahogany finish may also be obtained, at a nominal cost.

Complete information is available to any school official upon request.

Announce Filmo Visual Review

Bell & Howell Company, Chicago, Ill., have announced the first issue of "Filmo Visual Review," an 8-page magazine, devoted to visual education. The current issue contains a leading article by Prof. W. G. Starnes of Kentucky University, a number of brief reviews of important classroom films, notes from the screening room, for operators only, and new visual education tools.

Mr. Robinson Joins the Gregg Company

Mr. R. M. Robinson has joined the staff of the Gregg Publishing Company as the firm's representative for the state of Michigan. Mr. Robinson, a graduate of the Southwest Missouri State Teachers College, was formerly an instructor in the commercial department of the George Rogers Clark High School, at Hammond, Ind.

Announce New List of Records for Schools

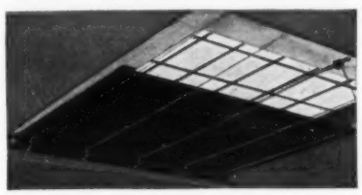
The educational department of the RCA Mfg. Company, Camden, N. J., has announced two new booklets, listing new uses for recorded music in the first, second, and third grades of the elementary schools, and a list of special records for schools, kindergartens, and other school departments.

The first booklet lists 126 single records and five albums for the three elementary grades. The second booklet lists records for such fields as social studies, drama and speech, French, choir and chorus classes, instrumental music, and music appreciation.

Both booklets are available to any teacher upon request.

Announce New Skylight Roller Shade

The Luther O. Draper Shade Company, Spiceland, Ind., has announced its new skylight roller shade, the latest development in its line of school shades. This complete roller shade unit is adaptable to many ceiling-window openings.



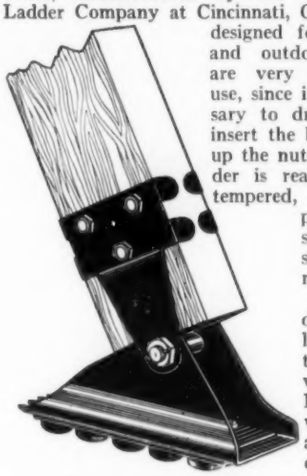
Draper's New Skylight Shade

The shade is made of dratex cloth, which is well adapted to use in a skylight shade, because of its strength, the ease with which it rolls, its ability to retain its shape, and its durability. An inverted L shape-steel shield is attached to the ceiling to contain the brackets for the shade roller, and special curved brackets, hold one end of the parallel wires which are tightened by a turnbuckle close to the ceiling line.

The shade comes in the three colors of tan, white, and black. Complete information is available by writing to the Draper Shade Company, at Spiceland, Ind.

New Universal Dayton Safety Ladder Shoes

The new Dayton Universal Safety Ladder Shoes, manufactured by the Dayton Safety Ladder Company at Cincinnati, Ohio, have been designed for both indoor and outdoor use. They are very convenient to use, since it is only necessary to drill three holes, insert the bolts, and draw up the nuts, then the ladder is ready for use. A tempered, serated steel plate prevents slipping when a spike grip is necessary.



Dayton Ladder Shoe

A copy of the descriptive bulletin concerning the Dayton Universal Safety Ladder Shoes will be sent to any school official upon application.

Medart Announces New Book on Physical Training

The urgency of the desire for national preparedness has raised the question, What shall we do to develop physical and social fitness in the youth?

The Fred Medart Mfg. Company, St. Louis, Mo., in an eight-page circular, takes up the problem and discusses the place of physical training and gymnasium equipment in a program stressing physical fitness for youth in the present times.

The firm has utilized the circular as a means of announcing its new book, "Physical Training — Practical Suggestions for the Instructor," which offers suggestions to the untrained individual reponsible for conducting a physical education program in the schools. The booklet, prepared by Coach Miller, describes a variety of exercises, supplemented by over 500 illustrations, which are of practical value to the layman instructor.

A copy of the booklet will be sent gratis to any instructor who requests it.

Announce New Tilting Arbor Circular Saw

The Yates-American Machine Company, of Beloit, Wis., has announced its new 10-in. tilting-arbor circular saw, which combines high efficiency with low cost.

This saw, which is known as the W-55, has a cutoff capacity of 17 in. ahead of the saw on the table, and will rip to the center of 38-in. stock without extensions, and to the center of 50-in. stock with side extensions. A simple, efficient pin-type arbor lock has been provided, to enable the operator to lock the arbor when changing the saw blades. A heavy, welded-steel frame encloses all working parts, including the motor.

Complete information and prices are available upon request.

Announce New Study of Machine Tools and Metalworking

The Continental Machines, Inc., of Minneapolis, Minn., has announced a new, simplified study of the basic principles of machine tools and metalworking production.

The course is in the form of a series of twelve posters, outlining the basic principles of machine tools and metalworking. The purpose of the series is to present an outline of the basic principles of machine tools in easy lessons.

ADVERTISERS' INDEX

Acme Chair Company 98
Albert Teachers' Agency 102
American Chain & Cable Company 67
American Crayon Company 13
American Seating Company 4th cover
American Type Founders Sales Corp. 77
Ampro Corporation, The 89
Archer Mfg. Company, Inc. 98
Arlington Seating Co. 98
Barber-Colman 92
Beckley-Cardy Company 109
Bell and Howell 109
Binders Board Manufacturers 84
Binney & Smith 85
Bruce Publishing Company, The 112
Burroughs Adding Machine Co. 16
Celotex Corporation, The 11
Chicago Hardware Foundry Co., The 90
Christiansen Co., The 102
Clarin Manufacturing Co. 86
Colgate-Palmolive-Peet Co. 4
Da-Lite Screen Co., Inc. 99
Dayton Safety Ladder Co. 94
Delta Mfg. Company 75
Detroit Steel Products Co. 79
Draper Shade Company, Luther O. 108
Dudfield Mfg. Company 102
Evans Company, W. L. 10
Finnell System, Inc. 86
Hamilton Manufacturing Co. 87
Heywood-Wakefield Company 74
Hillyard Chemical Company 71
Holmes Projector Company 81
Holtzer-Cabot Electric Co. 70
Hunt Pen Co., C. Howard 81
Huntington Laboratories, Inc. 82
Irwin Seating Company 77
Jacobsen Mfg. Co. 97
Johnson Service Company 7
Kewaunee Mfg. Company 73
Kimball Company, W. W. 85
Maple Flooring Manufacturers 2nd cover
Medart Mfg. Company, Fred. 97, 99, 100, 101, 103, 104
Miller Keyless Lock Co., The J. B. 102
Minneapolis-Honeywell Regulator Co. 3rd cover
Monroe Calculating Mach. Co., Inc. 69
Mork Green Studios 102
Murdock Mfg. & Supply Co. 97
National Lock Company 86
National School Equipment Co., The 86
National School Supplies and Equipment Assn. 12
National Terrazzo & Mosaic Association 93
National Time & Signal Corp. 95
Nelson Corp., Herman 1
Nesbitt, Inc., John J. 14
Norton Door Closer Co. 6
Peabody Seating Company 80
Peterson & Co., Leonard 108
Pick Co., Inc., Albert 92
Pittsburgh-Des-Moines Steel Company 9
Pittsburgh Plate Glass Co. 5
Porter Corporation, J. E. 92
Premier Engraving Company 98
Professional Directory 8
Rundle-Spence Mfg. Co. 100
Schermerhorn Teachers Agency 102
Sengbusch Self-Closing Inkstand 102
Sheldon & Company, E. H. 81
Sloan Valve Company 2 & 3
Spencer Turbine Company 83
Standard Electric Time Co. 78
Stewart Iron Works Co., The 10
Taylor Company, Halsey W. 88
Tennant Company, G. H. 104
Universal Bleacher Company 85
Universal Scenic Studios, Inc. 102
Vallen, Inc. 101
Vestal Chemical Company 10
Victor Animatograph Corp. 13
Vogel Company, Joseph A. 103
Wakefield Brass Co., The F. W. 76
Walrus Mfg. Company 96
Wayne Iron Works 92
Weber Costello Company 72
Wood Conversion Company 6
Yale and Towne Mfg. 97
Yates American Machine Co. 91

More Functional "Math"

for the 80 Per Cent

Give the Boys and Girls who do not go to college the Math which more adequately fits their life needs

SHOP MATHEMATICS

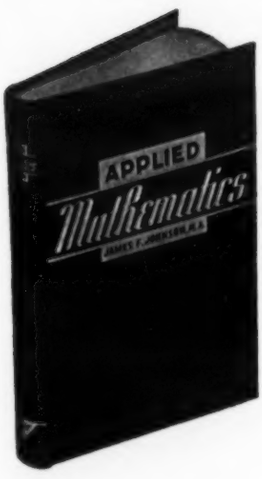
By C. A. Felker

Just off the press — a complete shop mathematics for machinists and toolmakers. Here is a specialized and advanced course in the practical application of mathematics for the high school boy who has decided on the trade he intends to follow and who wants to specialize in it before he leaves school. Written by an outstanding authority in the field who has not only had experience in teaching the subject in high school but who has had practical experience as well. An ideal course to follow Johnson's *Applied Mathematics.*

$2.20

APPLIED MATHEMATICS

(For Boys)



By James F. Johnson

A general course in applied "math" for boys which makes more practical application of elementary mathematics to everyday problems in industrial activities, manufacturing, and trade work.

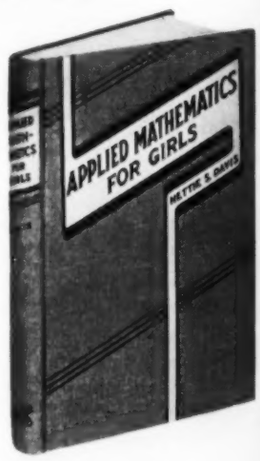
$1.40

APPLIED MATHEMATICS FOR GIRLS

By Nettie Stewart Davis

A course for girls which provides the basic fundamentals as well as the specialized applications of mathematics necessary for homemaking, the trades, and industrial occupations open to women.

$1.40



Copies will be sent on request for ten days' study.

THE BRUCE PUBLISHING COMPANY
801 Montgomery Bldg. Milwaukee, Wisconsin